

2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR401 - SUBLETTE

HUNT AREAS: 85-93, 96, 107

PREPARED BY: PATRICK
BURKE

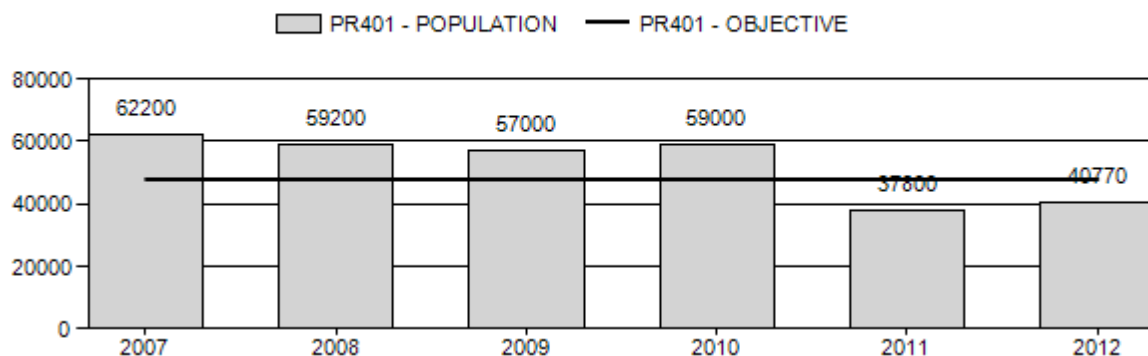
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	55,040	40,770	40,904
Harvest:	5,716	3,924	3,815
Hunters:	5,916	3,899	4,000
Hunter Success:	97%	101%	95 %
Active Licenses:	6,601	4,467	4,300
Active License Percent:	87%	88%	89 %
Recreation Days:	19,810	15,095	15,000
Days Per Animal:	3.5	3.8	3.9
Males per 100 Females	56	59	
Juveniles per 100 Females	63	63	

Population Objective: 48,000
 Management Strategy: Recreational
 Percent population is above (+) or below (-) objective: -15.1%
 Number of years population has been + or - objective in recent trend: 2
 Model Date: 2/25/2013

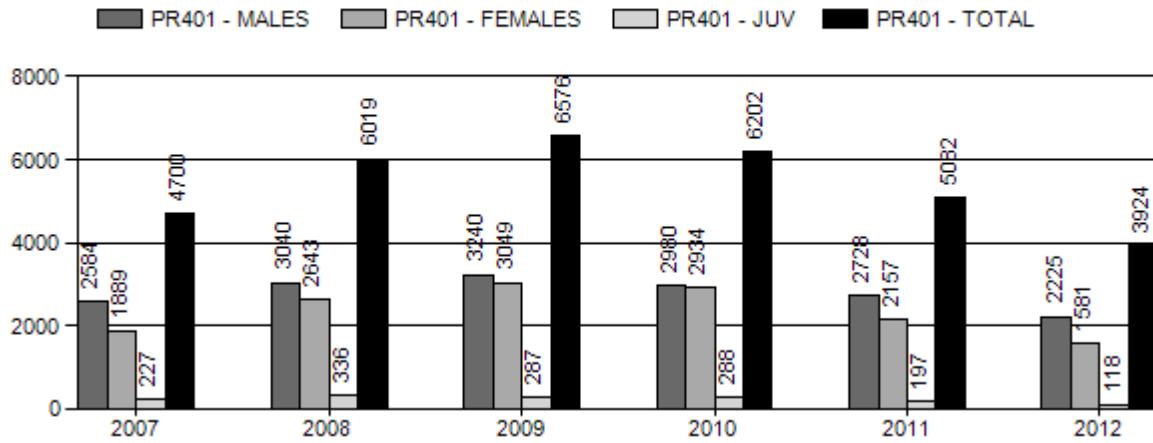
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	9.8%	8.0%
Males ≥ 1 year old:	25.6%	21.3%
Juveniles (< 1 year old):	1%	0.9%
Total:	9.4%	8.5%
Proposed change in post-season population:	4.1%	0.3%

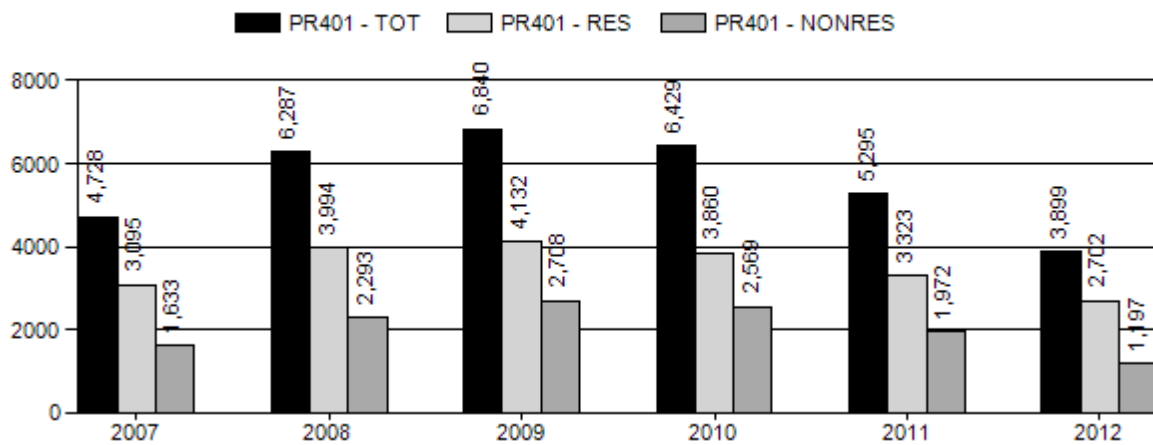
Population Size - Postseason



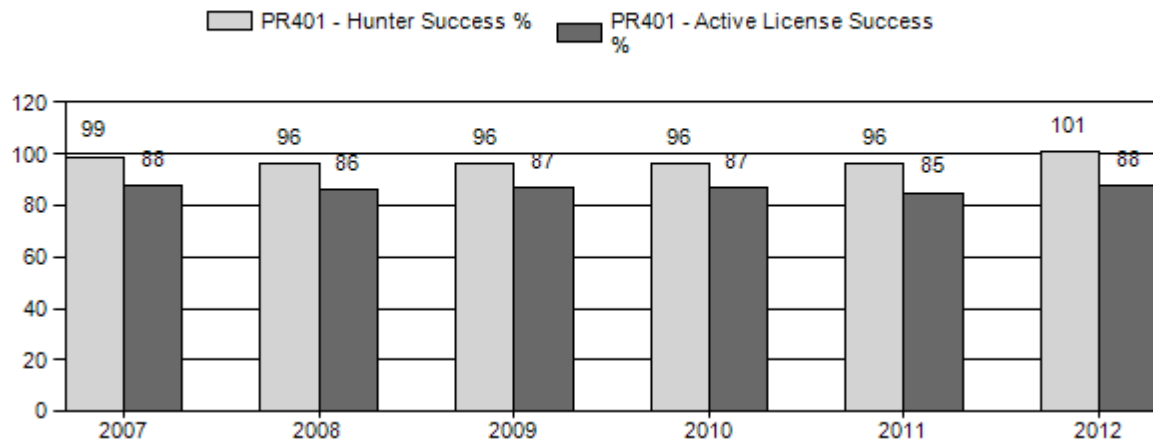
Harvest



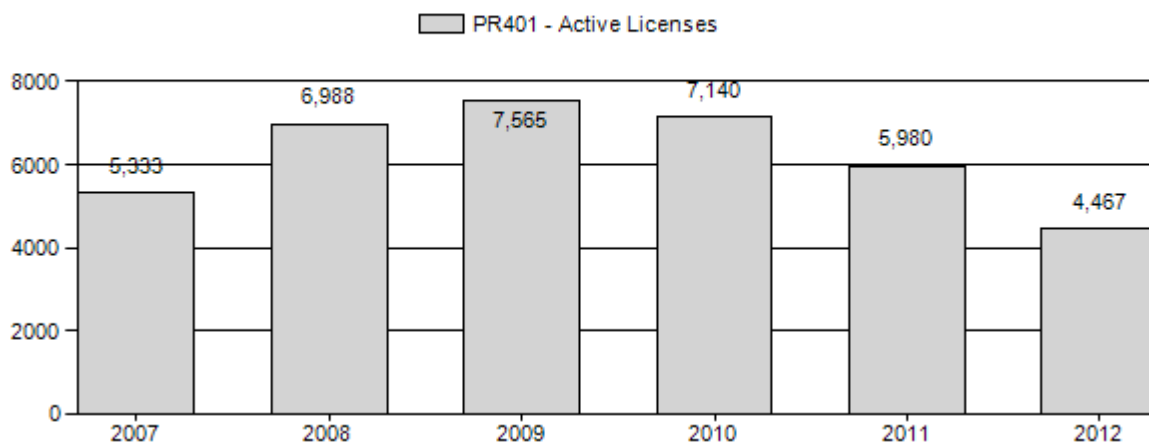
Number of Hunters



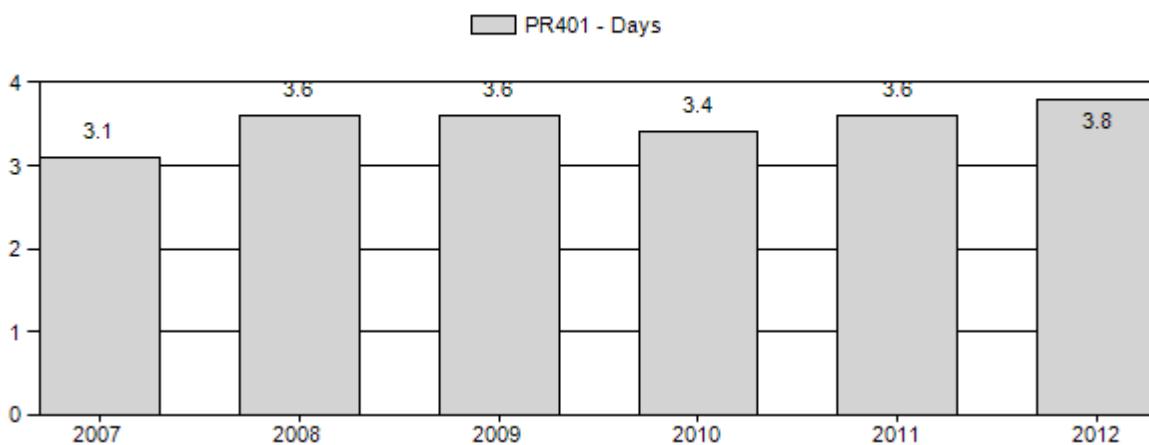
Harvest Success



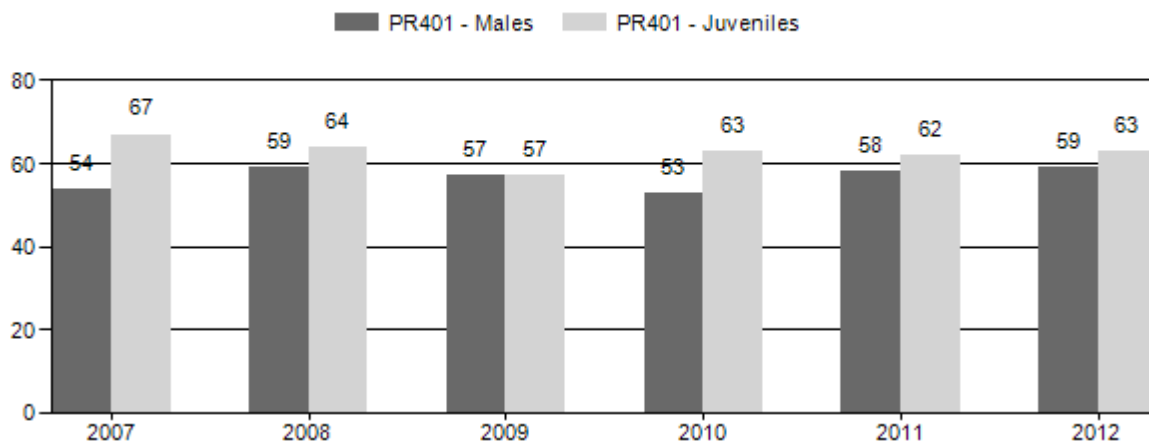
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR401 - SUBLETTE

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cts	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylg	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	67,400	1,092	2,025	3,117	24%	5,791	45%	3,894	30%	12,802	2,575	19	35	54	± 0	67	± 0	44
2008	65,800	1,103	2,241	3,344	26%	5,693	45%	3,635	29%	12,672	1,575	19	39	59	± 2	64	± 2	40
2009	64,500	1,088	2,357	3,445	27%	6,036	47%	3,431	27%	12,912	2,385	18	39	57	± 0	57	± 0	36
2010	66,000	783	2,407	3,190	24%	6,035	46%	3,804	29%	13,029	2,138	13	40	53	± 2	63	± 2	41
2011	43,400	684	2,043	2,727	26%	4,713	45%	2,936	28%	10,376	2,163	15	43	58	± 2	62	± 2	39
2012	45,086	646	1,967	2,613	27%	4,439	45%	2,800	28%	9,852	0	15	44	59	± 2	63	± 2	40

**2013 HUNTING SEASONS
SUBLETTE PRONGHORN HERD (PR401)**

Hunt Area	Type	SEASON DATES		Quota	Limitations
		Opens	Closes		
85	1	Sept.10	Oct. 31	15	Limited quota; any antelope
86	1	Sept. 10	Oct. 31	50	Limited quota; any antelope
	6	Sept. 10	Oct. 31	25	Limited quota; doe or fawn antelope
87	1	Sept. 10	Oct. 31	200	Limited quota; any antelope, except that portion of Area 87 one (1) mile north and one (1) mile west of the junction of U.S. Highway 191 and Wyoming Highway 352 shall be closed to hunting.
	2	Sept.25	Oct. 31	150	Limited quota; any antelope, except that portion of Area 87 one (1) mile north and one (1) mile west of the junction of U.S. Highway 191 and Wyoming Highway 352 shall be closed to hunting
	6	Sept. 10	Oct. 31	200	Limited quota; doe or fawn antelope, except that portion of Area 87 one (1) mile north and one (1) mile west of the junction of U.S. Highway 191 and Wyoming Highway 352 shall be closed to hunting
	7	Sept.25	Oct. 31	150	Limited quota; doe or fawn antelope, except that portion of Area 87 one (1) mile north and one (1) mile west of the junction of U.S. Highway 191 and Wyoming Highway 352 shall be closed to hunting
88	1	Sept. 10	Oct. 31	300	Limited quota; any antelope, except that portion of Area 88 on BLM lands immediately west of the East Green River Road (Sublette County Road 23-110) and west of the Woods-Wardell Road (Sublette County Road 23-179) shall be closed to hunting
	6	Oct. 01	Oct. 31	325	Limited quota; doe or fawn antelope, except that portion of Area 88 on BLM lands immediately west of the East Green River Road (Sublette County Road 23-110) and

west of the Woods-Wardell Road (Sublette County Road 23-179) shall be closed to hunting

89	1	Sept. 10	Oct. 31	325	Limited quota; any antelope
	6	Oct. 01	Oct. 31	375	Limited quota; doe or fawn antelope
	7	Oct. 01	Oct. 31	75	Limited quota; doe or fawn antelope valid in that portion of Area 89 south of Wyoming Highway 351 and east of U.S. Highway 189
90	1	Sept. 10	Oct. 31	225	Limited quota; any antelope valid in that portion of Area 90 east of U.S. Highway 191
	2	Sept. 10	Oct. 31	200	Limited quota; any antelope valid in that portion of Area 90 west of U.S. Highway 191
	6	Aug. 15	Sept. 09	225	Limited quota; doe or fawn antelope valid on private land in that portion of Area 90 east of U.S. Highway 191
		Sept. 10	Oct. 31		Unused Area 90 Type 6 licenses doe or fawn antelope valid in that portion of Area 90 east of U.S. Highway 191
	7	Sept. 10	Oct. 31	125	Limited quota; doe or fawn antelope valid in that portion of Area 90 west of U.S. Highway 191
91	1	Sept. 10	Oct. 31	400	Limited quota; any antelope
	6	Sept. 10	Oct. 31	225	Limited quota; doe or fawn antelope
	7	Aug. 15	Oct. 31	125	Limited quota; doe or fawn antelope, valid in that portion of Area 91 on private and Bureau of Reclamation land within Sweetwater County
92	1	Sept. 10	Oct. 31	150	Limited quota; any antelope
	7	Sept. 10	Oct. 31	50	Limited quota; doe or fawn antelope valid in that portion of Area 92 within the Farson-Eden Irrigation Project
93	1	Sept. 10	Oct. 31	500	Limited quota; any antelope
	6	Sept. 10	Oct. 31	50	Limited quota; doe or fawn antelope
	7	Sept. 10	Oct. 31	100	Limited quota; doe or fawn antelope valid in that portion of Area 93 north and west of Wyoming Highway 189
96	1	Sept. 10	Oct. 31	75	Limited quota; any antelope
	7	Sept. 10	Oct. 31	25	Limited quota; doe or fawn antelope valid in that portion of Area 96 within the Farson-Eden Irrigation Project

107	1	Sept. 10	Sept. 30	50	Limited quota; any antelope
	6	Sept. 10	Sept. 30	50	Limited quota; doe or fawn antelope
	0	Aug. 20	Sept. 09	50	Limited quota; any antelope, muzzleloading firearms and handguns only

ARCHERY : Aug. 15

Refer to license type and limitations in Section 3.

Hunt Area	Type	Quota change from 2012
90	7	-50
91	7	+50
92	6	-25
	7	+25
96	1	-50
	6	-25
107	1	-50
	6	-50
	0	-25
Herd Unit Total	1	-100
	6	-100
	7	+25
	0	-25

Management Evaluation

Current Management Objective: 48,000

Management Strategy: Recreational

2012 Postseason Population Estimate: ~41,000

2013 Proposed Population Estimate: ~41,000

The post-season population objective for the Sublette pronghorn herd is 48,000 pronghorn and is designated as a recreational management herd. This objective for this population was set in 1994.

Herd Unit Issues

The 2012 post-season modeled population estimate for the Sublette herd is approximately 41,000 pronghorn with a stable trend. The last line-transect survey was conducted on this population during June 2011 (end of 2010 biological year). The resulting end of biological year population estimate from that line-transect survey was just under 27,000 pronghorn. The previous line-

transect survey flown at the end of the 2006 biological year resulted in an estimated end of bio-year population size of just over 48,000 pronghorn, which placed this population significantly over objective. Therefore, harvest was significantly increased to help move the herd closer to its objective. This level of increased harvest was continued until the severe winter of 2010-2011 resulted in this herd to experience significant winter mortality and caused the herd to go from being over objective to under objective after that winter.

Assuming normal fawn recruitment and survival, the 2013 hunting season should result in a very slight population increase. The line-transect survey to be flown in the summer of 2013 will be important for refining the population estimate and model for a herd occupying such a vast geographic area as the Sublette Pronghorn Herd.

Weather

Tougher than normal winter conditions during the 2010-2011 winter resulted in higher than normal over winter mortality in this herd. The 2011-2012 winter by comparison for the most part significantly more mild than the previous winter and was relatively dry. The summer of 2012 was extremely dry with little summer precipitation. This may have resulted in fewer fawns succumbing to cold, wet conditions during the early summer and could be the cause for the slightly improved fawn ratios seen in 2012. The drought conditions at the lower elevation winter ranges of the herd unit may affect this herd to some extent most likely in the form of lower fawn ratios in 2013 caused by poorer condition of does during gestation.

Habitat

No habitat transects targeting pronghorn range were conducted in the Sublette Herd Unit during the period covered by this report. However, the summer of 2012 was one of the driest summers on record in Wyoming. This lack of moisture was especially evident in areas of the herd unit below 8,000 ft, which covers most of the occupied pronghorn habitat. Despite the low moisture levels during the fawn rearing portion of 2012, pre-season classifications resulted in normal fawn to doe ratios, suggesting that this herd was able to handle the drought conditions reasonably well. The below average precipitation and the reduced plant growth that the drought conditions would have caused, may impact this herd in the future by not allowing this herd to grow as quickly as if the summer of 2012 had received normal precipitation.

Field Data

Pre-season ground classifications conducted in August of 2012 resulted in observed ratios of 63 fawns per 100 does as well as 59 total and 15 yearling bucks per 100 does for the herd unit. A total of 9,852 pronghorn were classified across the whole herd unit, which is down from a high of 13,029 pronghorn classified in 2010 when the population was at a higher level.

Harvest Data

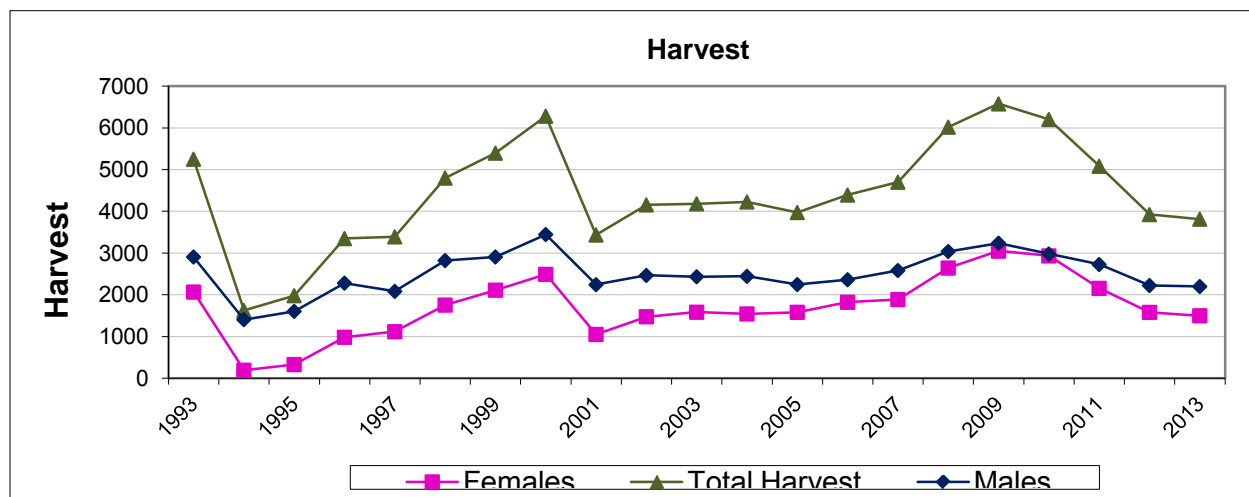
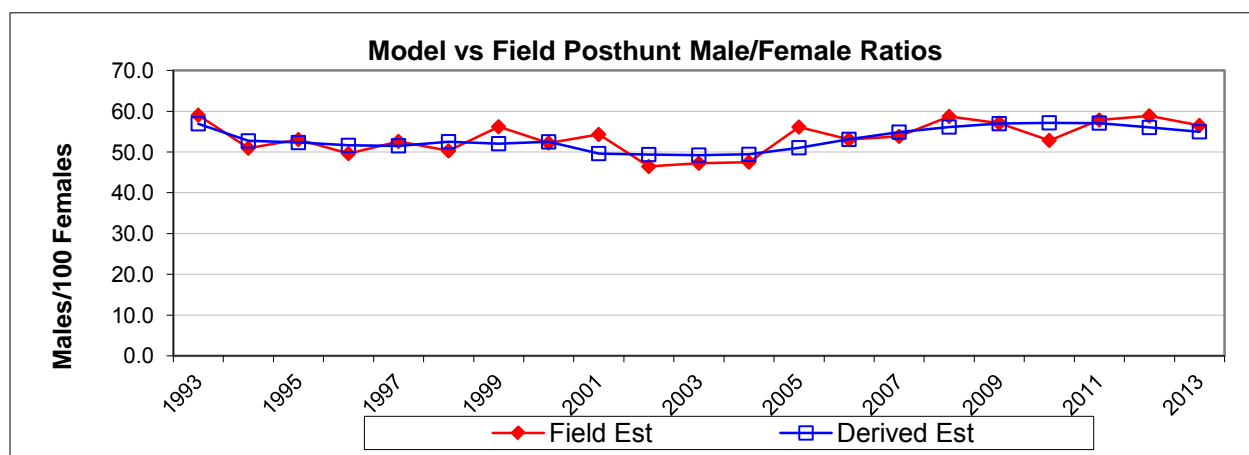
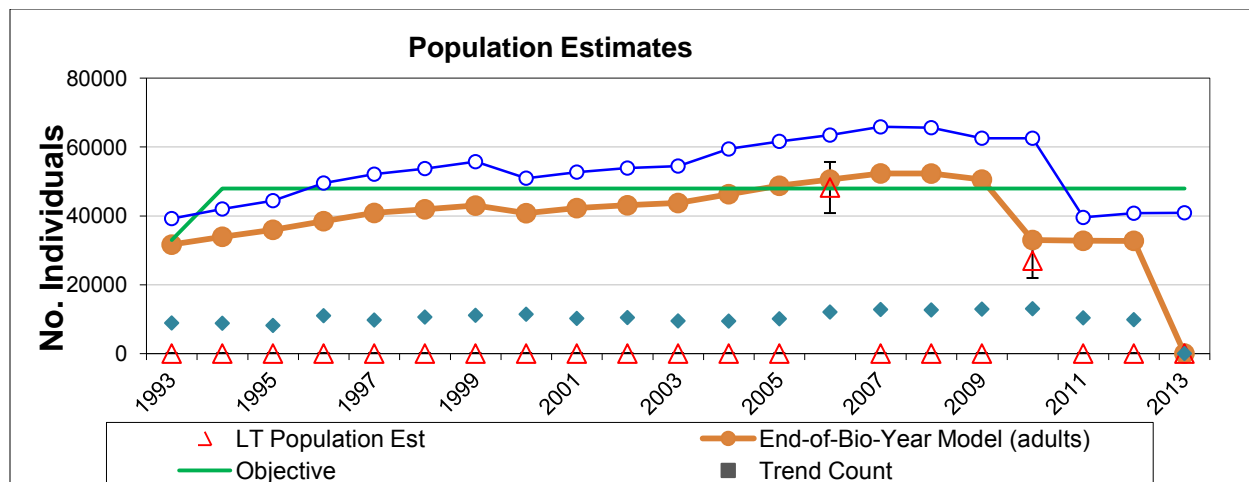
The 2012 hunting season saw the lowest harvest recorded in the Sublette Herd since 2005. This reduction in the number of pronghorn harvested in the herd was caused by fewer licenses being issued due in part to the 2010-2011 winter and to increased numbers of licenses issued when the herd was above objective in the late 2000's. There was a very slight increase in the number of days per animal harvested at 3.8 days per harvest, which suggests that hunters may have had to work a little bit harder to harvest a pronghorn in 2012. The overall active license success rate in 2012 was 88%, which is generally in line with success rates for the herd in recent years, this indicates that the number of licenses issued was appropriate for the number of animals on the ground.

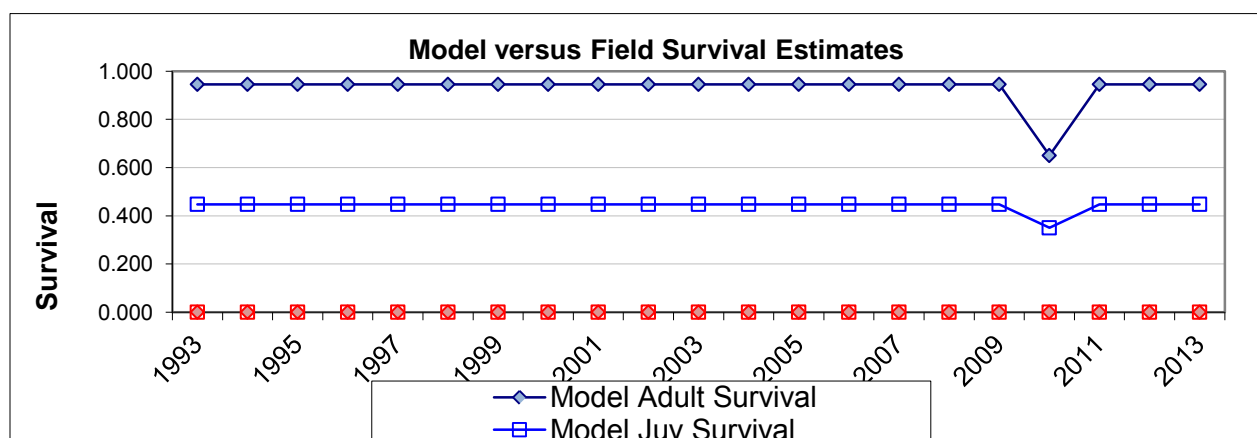
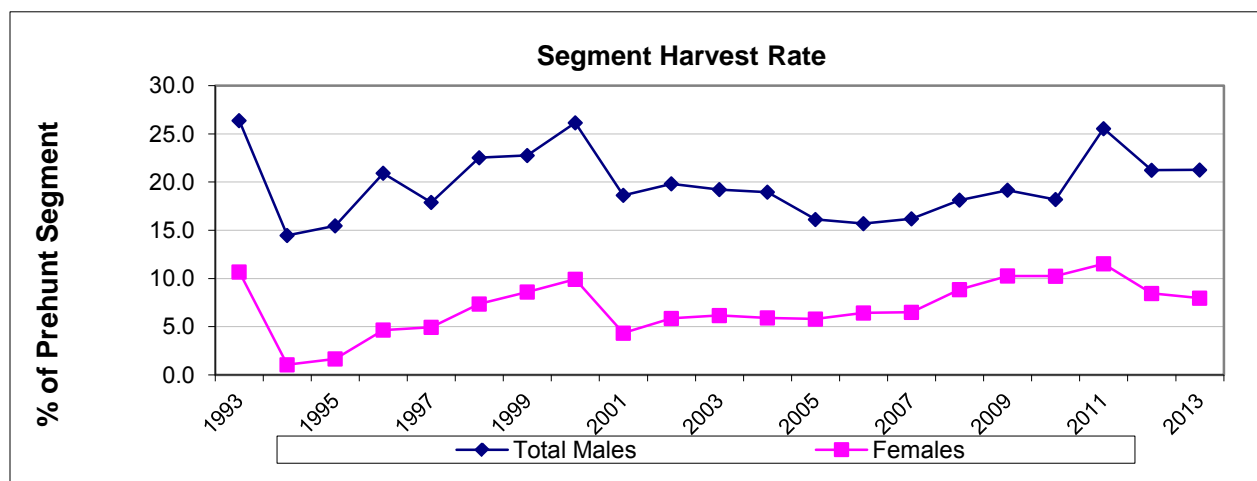
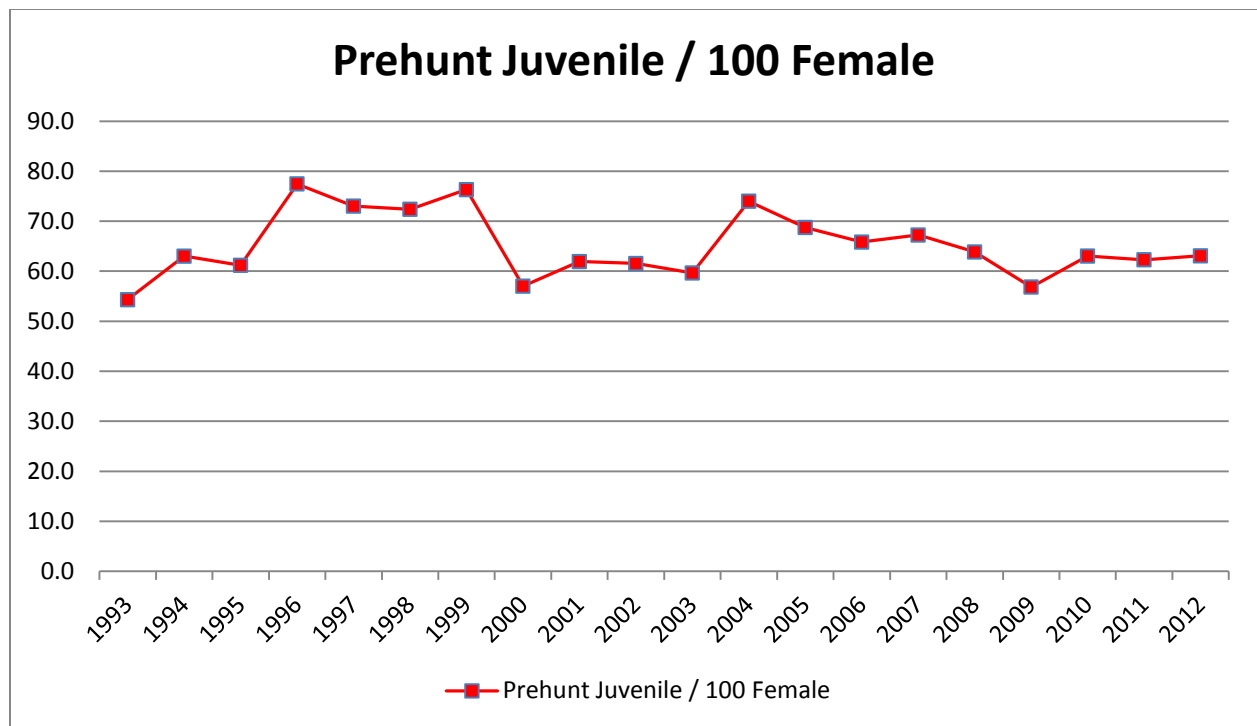
Population

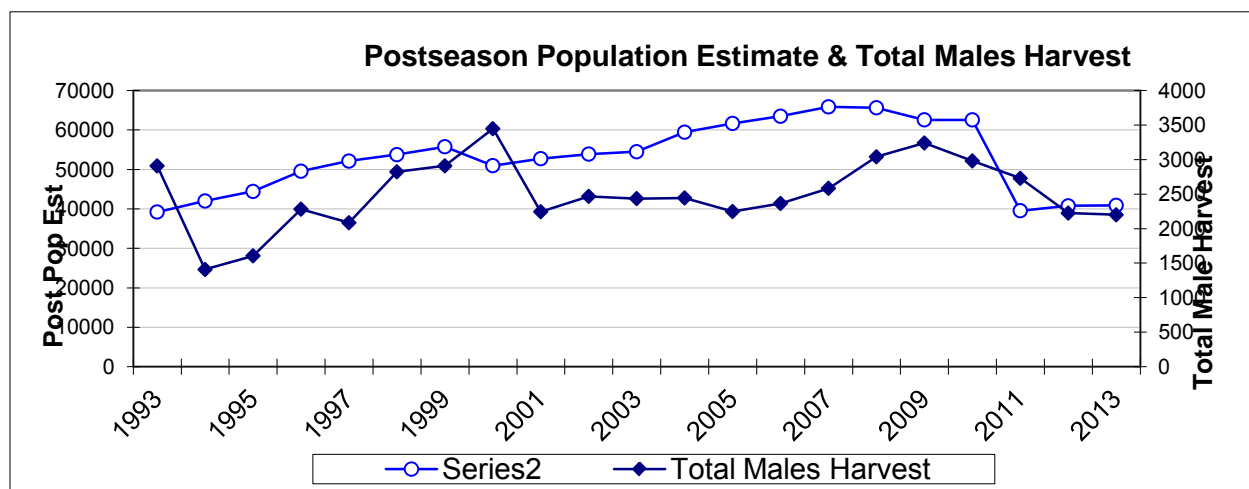
The model for the Sublette herd does a reasonable job of tracking observed ratios and line-transect estimates for this large and geographically spread out pronghorn herd. Use of the semi-constant survival model was necessary to allow the modeled population estimates to match the line-transect estimates and to allow for the population to decline sharply after the 2010-2011 winter when this herd experienced above average winter mortality. The model prediction of a significant population reduction between the 2006 bio-year and 2010 bio-year line-transect estimates matches observations made by both field personnel and the general public.

Management Summary

The 2013 season includes maintaining license numbers at their 2012 levels in most hunt areas in the herd unit with some slight reductions in the southern portion of the herd. Concerns over extremely low numbers of pronghorn in some of the southern hunt areas have led to the Type 6 licenses in Hunt Areas 92 and 96 being removed from the 2013 season offering. The 2013 hunting season also includes a reduction in the number of Type 1 licenses for Hunt Area 96 due to increasing hunter complaints about a difficulty of locating pronghorn and a general lack of animals in that Hunt Area during the 2012 hunting season. Reductions in all license types are also part of the 2013 season for Hunt Area 107 due to lower observed buck to doe ratios in 2012 and decreased hunter success.







INPUT	
Species:	Pronqhom
Biologist:	Patrick Burke
Herd Unit & No.:	Sublette
Model date:	02/25/13

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	72	81	<input type="checkbox"/> CJ,CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	81	95	<input checked="" type="checkbox"/> SCJ,SCA Model	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	22	133	<input type="checkbox"/> TSJ,CA Model	

Population Estimates from Top Model												
Year	Predicted Prehunt Population (year <i>i</i>)			Total	Predicted Posthunt Population (year <i>i</i>)			Total	Predicted adult End-of-bio-year Pop (year <i>i</i>)			LT Population Field Est
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	
1993	11568	12127	21301	44997	11266	8929	19026	39220	10923	20715	31639	48244
1994	12792	10705	20301	43798	12766	9156	20087	42009	11655	22274	33929	
1995	13356	11422	21829	46606	13307	9655	21464	44427	12242	23712	35954	
1996	18002	11997	23238	53237	17911	9487	22155	49553	13078	25378	38456	
1997	18160	12816	24870	55847	17954	10523	23640	52118	14067	26780	40847	
1998	18999	13785	26245	59029	18757	10680	24313	53750	14346	27563	41909	
1999	20615	14059	27012	61686	20204	10859	24688	55751	14797	28185	42982	
2000	15748	14501	27622	57870	15370	10709	24880	50960	13524	27254	40778	
2001	16541	13254	26709	56503	16390	10784	25550	52725	13967	28285	42252	
2002	17059	13688	27719	58467	16826	10974	26095	53895	14213	28860	43074	
2003	16872	13929	28283	59085	16695	11250	26540	54485	14468	29269	43737	
2004	21228	14178	28684	64090	20965	11490	26985	59440	15649	30653	46302	
2005	20653	15336	30040	66028	20495	12863	28298	61657	16909	31839	48748	
2006	20539	16570	31202	68312	20314	13970	29196	63480	17908	32630	50538	26991
2007	21502	17550	31977	71030	21253	14708	29899	65860	18814	33512	52326	
2008	20970	18438	32842	72249	20600	15094	29934	65628	18976	33317	52293	
2009	18559	18596	32650	69806	18244	15032	29297	62572	18381	32153	50535	
2010	19862	18014	31510	69386	19545	14736	28283	62563	11988	20992	32980	
2011	12815	11748	20572	45135	12599	8747	18199	39545	11763	20998	32761	
2012	12980	11528	20578	45086	12850	9080	18839	40770	11616	21133	32749	
2013	13006	11384	20710	45100	12880	8964	19060	40904				
2014												
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												

Survival and Initial Population Estimates						
Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.45			0.95		
1994	0.45			0.95		
1995	0.45			0.95		
1996	0.45			0.95		
1997	0.45			0.95		
1998	0.45			0.95		
1999	0.45			0.95		
2000	0.45			0.95		
2001	0.45			0.95		
2002	0.45			0.95		
2003	0.45			0.95		
2004	0.45			0.95		
2005	0.45			0.95		
2006	0.45			0.95		
2007	0.45			0.95		
2008	0.45			0.95		
2009	0.45			0.95		
2010	0.35			0.65		
2011	0.45			0.95		
2012	0.45			0.95		
2013	0.45			0.95		
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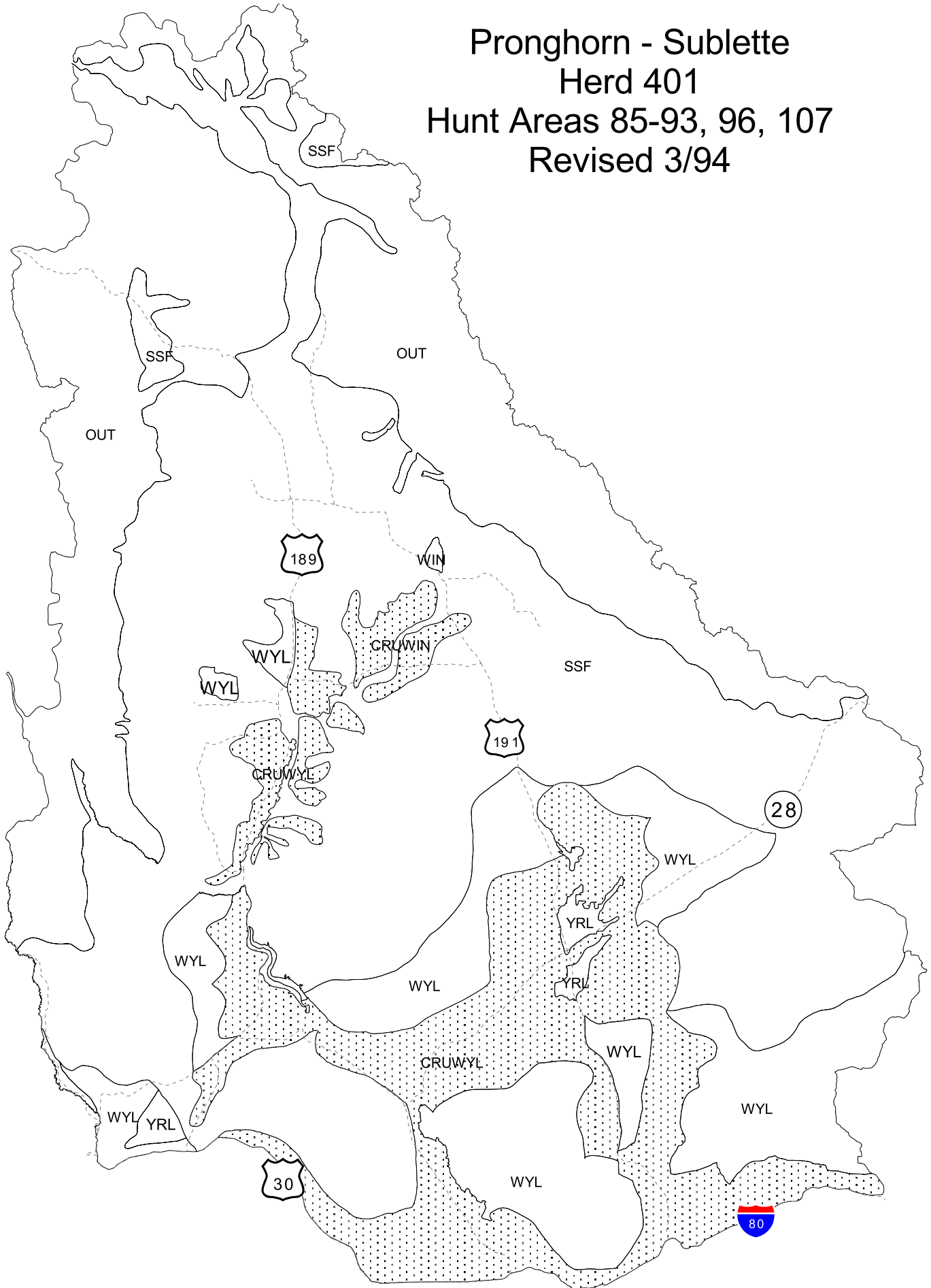
Juvenile Survival =	0.448
Adult Survival =	0.945
Initial Total Male Pop/10,000 =	1.213
Initial Female Pop/10,000 =	2.130

MODEL ASSUMPTIONS

Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

Year	Classification Counts										Harvest	
	Juvenile/Female Ratio			Total Male/Female Ratio			Juv	Males	Females	Total Harvest	Segment Harvest Rate (% of	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE					Total Males	Females
1993		54.31	1.42	56.93	59.04	1.50	2908	2068	275	5251	26.4	10.7
1994		63.01	1.58	52.73	50.94	1.37	1408	195	24	1627	14.5	1.1
1995		61.19	1.61	52.33	53.06	1.46	1606	331	44	1981	15.5	1.7
1996		77.47	1.68	51.63	49.61	1.24	2282	985	82	3349	20.9	4.7
1997		73.02	1.71	51.53	52.59	1.36	2085	1118	187	3390	17.9	4.9
1998		72.39	1.62	52.53	50.28	1.26	2823	1756	220	4799	22.5	7.4
1999		76.32	1.68	52.05	56.19	1.36	2909	2113	374	5396	22.8	8.6
2000		57.01	1.28	52.50	52.22	1.21	3447	2492	343	6282	26.1	9.9
2001		61.93	1.46	49.62	54.31	1.33	2245	1053	137	3435	18.6	4.3
2002		61.54	1.41	49.38	46.45	1.16	2467	1477	212	4156	19.8	5.9
2003		59.66	1.44	49.25	47.24	1.23	2435	1585	161	4181	19.2	6.2
2004		74.01	1.74	49.43	47.50	1.28	2444	1544	239	4227	19.0	5.9
2005		68.75	1.61	51.05	56.13	1.40	2248	1583	143	3974	16.1	5.8
2006		65.83	1.41	53.11	53.06	1.21	2364	1824	205	4393	15.7	6.4
2007		67.24	1.39	54.88	53.82	1.20	2584	1889	227	4700	16.2	6.5
2008		63.85	1.36	56.14	58.74	1.28	3040	2643	336	6019	18.1	8.9
2009		56.84	1.22	56.96	57.07	1.22	3240	3049	287	6576	19.2	10.3
2010		63.03	1.30	57.17	52.86	1.16	2980	2934	288	6202	18.2	10.2
2011		62.30	1.46	57.11	57.86	1.39	2728	2157	197	5082	25.5	11.5
2012		63.08	1.52	56.02	58.86	1.45			1581	3924	21.2	8.5
2013		62.80	1.43	54.97	56.53	1.33			1500	3815	21.3	8.0
2014												
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												

Pronghorn - Sublette
Herd 401
Hunt Areas 85-93, 96, 107
Revised 3/94



2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR411 - UINTA-CEDAR MOUNTAIN

HUNT AREAS: 95, 99

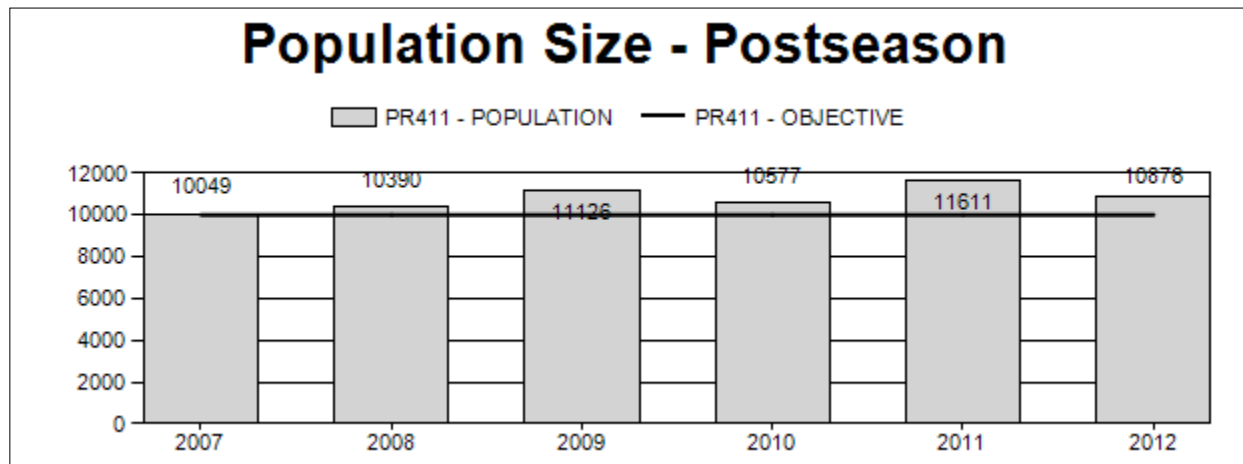
PREPARED BY: JEFF SHORT

	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	10,751	10,876	10,144
Harvest:	836	955	950
Hunters:	882	980	980
Hunter Success:	95%	97%	97%
Active Licenses:	962	1,083	1,080
Active License Percent:	87%	88%	88%
Recreation Days:	3,329	3,468	3,400
Days Per Animal:	4.0	3.6	3.6
Males per 100 Females	62	58	
Juveniles per 100 Females	52	58	

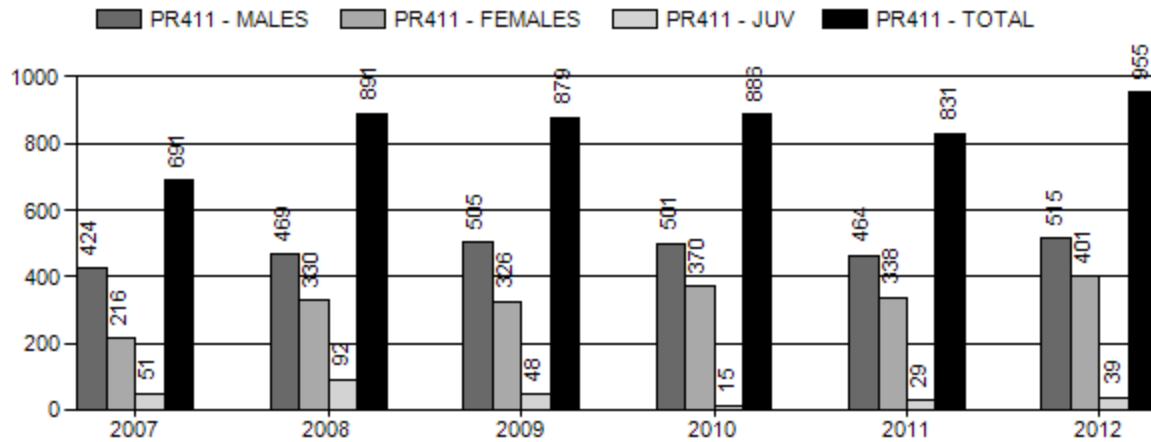
Population Objective:	10,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	9%
Number of years population has been + or - objective in recent trend:	5
Model Date:	03/01/2013

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

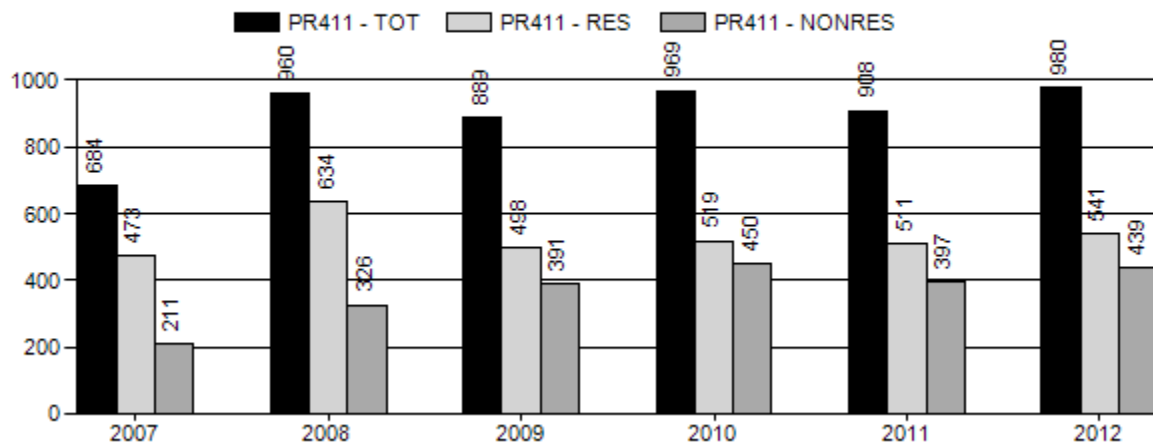
	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	8.2%	8.6%
Males \geq 1 year old:	16.9%	18.8%
Juveniles (< 1 year old):	16.36%	17.45%
Total:	8.22%	8.53%
Proposed change in post-season population:	0.7%	-6.7%



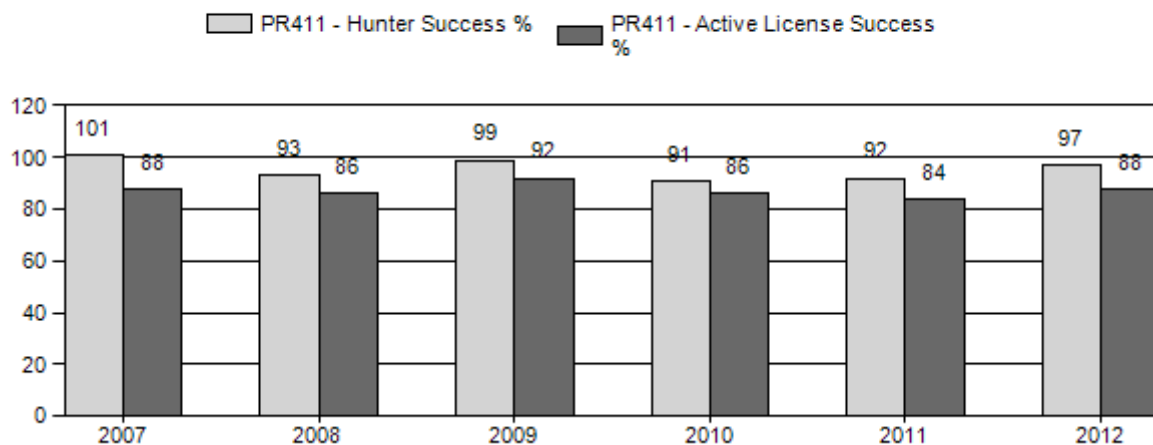
Harvest



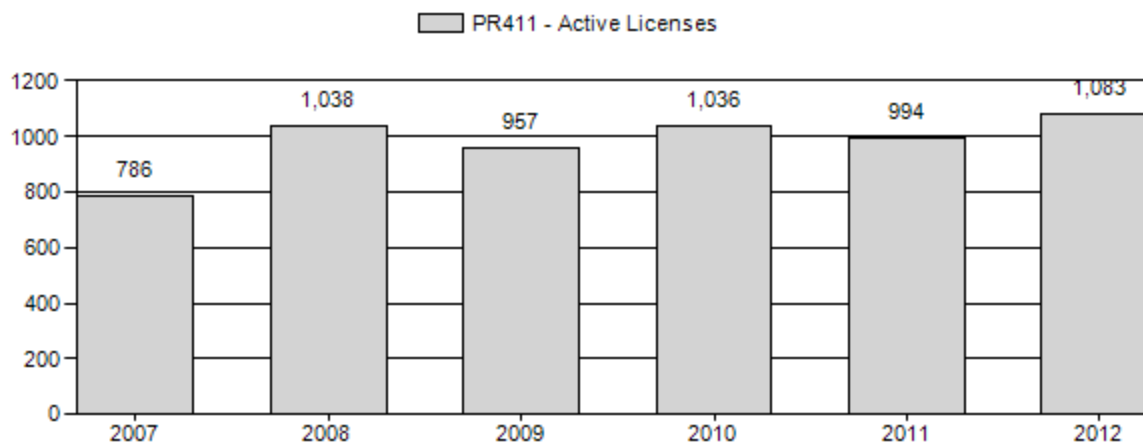
Number of Hunters



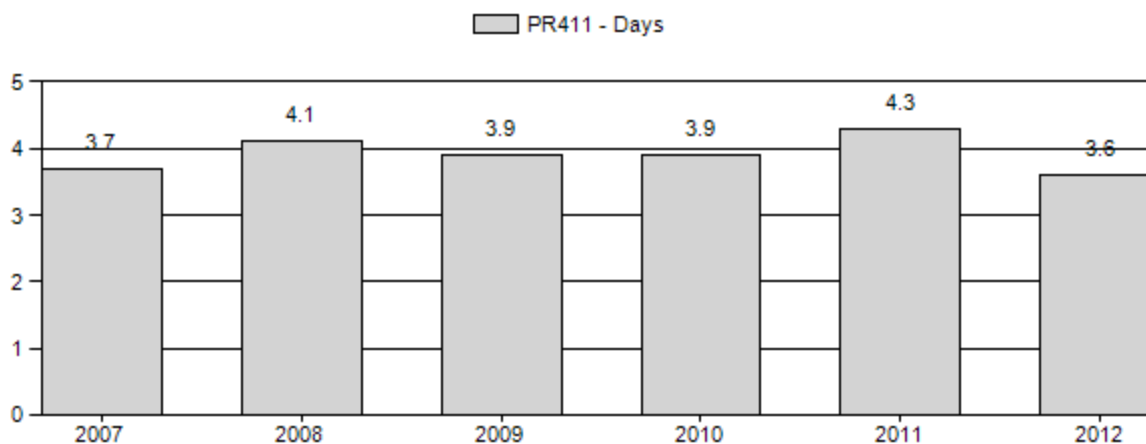
Harvest Success



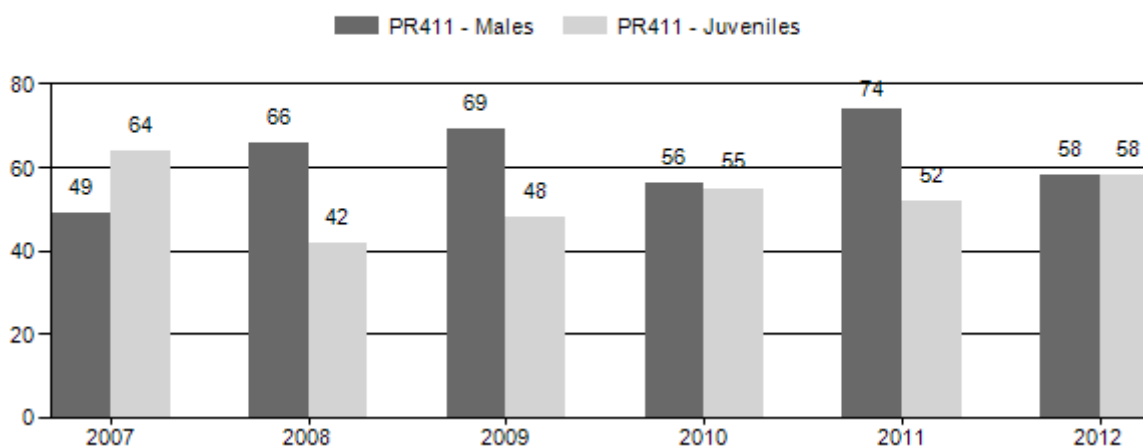
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR411 - UINTA-CEDAR MOUNTAIN

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylg	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	10,809	176	262	438	23%	894	47%	570	30%	1,902	1,983	20	29	49	± 4	64	± 5	43
2008	11,370	222	337	559	32%	849	48%	353	20%	1,761	0	26	40	66	± 5	42	± 4	25
2009	12,093	191	542	733	32%	1,060	46%	511	22%	2,304	0	18	51	69	± 5	48	± 4	28
2010	11,551	151	525	676	26%	1,213	47%	668	26%	2,557	0	12	43	56	± 4	55	± 4	35
2011	12,525	120	317	437	33%	589	44%	309	23%	1,335	0	20	54	74	± 7	52	± 6	30
2012	11,916	88	378	466	27%	799	46%	460	27%	1,725	0	11	47	58	± 5	58	± 5	36

2013 HUNTING SEASONS

SPECIES: Pronghorn

HERD UNIT: Uinta-Cedar Mountain (411)

HUNT AREAS: 95, 99

Hunt Area	Type	Dates of Seasons		Limited Quota	Limitations
		Opens	Closes		
95	1	Sept. 10	Oct. 31	325	Limited quota licenses; any antelope
	7	Sept. 10	Oct. 31	75	Limited quota licenses; doe or fawn valid on irrigated lands
99	1	Sept. 10	Oct. 31	225	Limited quota licenses; any antelope
	6	Sept. 10	Oct. 31	400	Limited quota licenses; doe or fawn
	7	Sept. 10	Oct. 31	50	Limited quota licenses; doe or fawn valid north and west of Wyoming Highway 410 and west of Uinta County Road 271
	0	Sept. 1	Oct. 31	50	Limited quota licenses; any antelope, muzzle-loading firearms only
95, 99	Archery	Aug. 15	Sept. 9	Refer to Section 3 of this chapter	

Hunt Area	License Type	Quota change from 2012
Herd Unit Total		

Management Evaluation

Current Postseason Population Management Objective: 10,000

Management Strategy: Recreational

2012 Postseason Population Estimate: ~10,876

2013 Proposed Postseason Population Estimate: ~10,144

Herd Unit Issues

The two hunt areas in this herd are very different in several characteristics. Hunt Area 95 is mostly public land, more xeric, and has much lower fawn production and recruitment. Hunt Area 99 has much better habitat conditions for fawn production and survival. Hunt Area 99 has

much more private land where the majority of Hunt Area 95 is public land administered by the Bureau of Land Management.

Throughout the herd unit there is a low tolerance for the presence of pronghorn on most irrigated land holdings. Conflict with agriculture producers is often an issue for this herd. Damage complaints primarily occur on irrigated lands during the summer and early fall. However, irrigated lands are uncommon relative to native ranges, and make up a small portion of the overall herd unit. Significant efforts have been made to direct harvest toward those problems. Perceived reduction in livestock forage due to pronghorn foraging is an issue that can be brought up. However, dietary overlap and pronghorn use is negligible in native rangelands.

Increased energy development on crucial habitat is a looming issue for this herd. The southern portion of the Moxa Arch exists in the north-central portion of Hunt Area 95, and other oil and gas developments occur or are planned. At present, this activity has yet to impact habitats on a large scale, but much of the area is leased for such activity. Wyoming Highway 414 has created a significant movement barrier between the two hunt areas in this herd unit, increasing pronghorn use of a small portion of Area 99, and preventing interchange between the two hunt areas.

Weather

Weather during 2012 and into 2013 was extremely dry and warmer than normal. The winters of 2011-2012 and 2012-2013 were mild with limited snowpack, resulting in good over winter survival. However, the dry spring and summer of 2012 negatively impacted summer and winter range forage production. Fawn survival suffered from the extremely dry conditions. Conditions were better at higher elevations and pronghorn distribution was greatly affected.

Habitat

Habitat data collection has been inconsistently collected in this herd unit and formal efforts to read transects has been absent in the recent past. At a course scale, both herbaceous plant and shrub growth was severely impacted during the 2012 extreme drought conditions, and may impact summer 2013 fawn production due to stressed does.

Field Data

The 2012 post-season population estimate was about 10,900 with limited growth since 2007. The last line transect survey was conducted in this herd unit in June 2009. That survey resulted in an estimated population of 10,997 pronghorn for the end of bio year 2008. A new line transect survey is scheduled to be flown in 2014.

Harvest Data

In 2012 in Area 99 we added a type 7 hunt with 50 permits to target specific depredation problems west of Mountain View. This helped to alleviate private land damage concerns. Conservative seasons continue to be warranted in HA 95 due to very low fawn ratios.

Doe/fawn harvest opportunity was increased every year for several years in area 99. The 2009, 2010 and 2011 season structures offered substantially increased doe/fawn harvest opportunity to try to control growth of that part of the herd. Those seasons allowed significant doe/fawn harvest with large increases in permits. These hunts have had very good success rates. This management framework has held this population near objective. For 2013 we are continuing this strategy to further reduce damage complaints and maintain the herd near objective.

Population

The TSJ,CA model was selected due to the low Relative AICc score, its good fit with observed data, and the population estimate appears to be reasonable. The CJ,CA model scored slightly better but it did not fit the data as well as the TSJ,CA model. The TSJ,CA model fits very well with the variable fawn survival data common in the high elevation winter ranges in the herd unit.

In the future it will be imperative that we continue to obtain a reliable population estimate periodically through line transect surveys to check the status of the herd and anchor the model. With this, it is likely we can provide a good population model and track the trend of this population. Without these independent anchor points, it is less clear if our current harvest levels can be sustained or if management maintains this herd at objective.

Due to significant documented differences in density and productivity between hunt areas within this herd unit models generated for this herd should be used with some caution. However, at the current time the model appears to be performing well, and should continue to perform well in the future with good line transect data. In 2012, the Department switched from POP-II models to an Excel spreadsheet model. Since these are new models they are going to be under development and subject to extensive refining. They will likely change over time with new data.

Currently the model is estimating we have around 10,900 pronghorn in the herd, with a stable trend since 2007. Results are substantiated by consistency in classification sample sizes, harvest success and field observations. The Hunt Area 99 portion of this herd has the potential for rapid growth, as consecutive years with high fawns ratios have occurred in the past. This can result in overloaded winter ranges on difficult years. Therefore, adequate harvest has been needed to curtail growth in this segment of the herd unit.

Management Summary

For 2013 season setting we will maintain current levels of harvest. This should continue to alleviate depredation issues and keep the population fairly stable. If we attain the projected harvest of 950 animals and near normal fawn recruitment this pronghorn population should remain close to objective. We predict a 2013 post-season population of about 10,200. The Objective and management strategy were last revised in 2000.

Model

INPUT	
Species:	Pronghorn
Biologist:	Jeff Short
Herd Unit & No.:	PR411 Unta CM
Model date:	02/17/13

☒ Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	99	108	<input type="checkbox"/> CJ,CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	99	108	<input type="checkbox"/> SCJ,SCA V	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	39	135	<input checked="" type="checkbox"/> TSJ,CA Model	

Population Estimates from Top Model															
Year	Predicted Prehunt Population (year			Total	Predicted Posthunt Population (year i)			Total	Predicted adult End-of-bio-year Pop (year			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
1993	1379	2391	4686	8456	1219	1571	3905	6696	1924	4083	6007	7347	1837	10000	
1994	1779	1885	4001	7666	1754	1517	3821	7092	1764	3910	5674	5957	1489	10000	
1995	1577	1729	3832	7138	1555	1444	3713	6712	1826	3939	5765			10000	
1996	2342	1790	3860	7991	2327	1504	3767	7599	2092	4201	6293	6476	1619	10000	
1997	1966	2050	4117	8133	1919	1664	3918	7502	1924	4024	5948			10000	
1998	2157	1886	3944	7986	2152	1482	3765	7399	1767	3898	5665	4802	1201	10000	
1999	2334	1732	3820	7885	2308	1359	3585	7252	1980	4049	6028			10000	
2000	2063	1940	3968	7970	2033	1534	3786	7353	1783	3885	5668	7877	1969	10000	
2001	2122	1748	3807	7678	2051	1399	3497	6947	2002	3944	5946			10000	
2002	2046	1962	3865	7873	2018	1513	3621	7152	2016	3983	5999	6320	1580	10000	
2003	2107	1976	3903	7986	2083	1504	3570	7157	1761	3682	5444			10000	
2004	2927	1726	3609	8262	2916	1249	3517	7682	1699	3831	5530	4524	1131	10000	
2005	2571	1665	3755	7991	2548	1239	3687	7474	2272	4567	6839			10000	
2006	2379	2227	4476	9081	2358	1787	4356	8500	2689	5093	7782			10000	
2007	3182	2635	4991	10809	3126	2169	4754	10049	3391	5800	9191			10000	
2008	2363	3323	5684	11370	2262	2807	5321	10390	3576	5913	9489	10997	2423	10000	
2009	2793	3505	5795	12093	2741	2949	5436	11126	3213	5529	8742			10000	
2010	2984	3149	5419	11551	2968	2598	5012	10577	3708	5951	9659			10000	
2011	3060	3634	5832	12525	3028	3123	5460	11611	3405	5556	8961			10000	
2012	3135	3336	5445	11916	3104	2772	5000	10876	3132	5220	8352			10000	
2013	3009	3069	5116	11194	2976	2492	4676	10144						10000	

Survival and Initial Population Estimates													
Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates									
	Model Est	Field Est	SE	Model Est	Field Est	SE							
1993	0.90			0.91									
1994	0.45			0.91									
1995	0.66			0.91									
1996	0.62			0.91									
1997	0.45			0.91									
1998	0.40			0.91									
1999	0.65			0.91									
2000	0.40			0.91									
2001	0.72			0.91									
2002	0.65			0.91									
2003	0.40			0.91									
2004	0.40			0.91									
2005	0.90			0.91									
2006	0.90			0.91									
2007	0.90			0.91									
2008	0.90			0.91									
2009	0.40			0.91									
2010	0.90			0.91									
2011	0.40			0.91									
2012	0.40			0.91									
2013	0.40			0.91									

Parameters: Optim cells

Adult Survival = 0.905

Initial Total Male Pop/10,000 = 0.239

Initial Female Pop/10,000 = 0.469

MODEL ASSUMPTIONS

Sex Ratio (% Males) = 50%

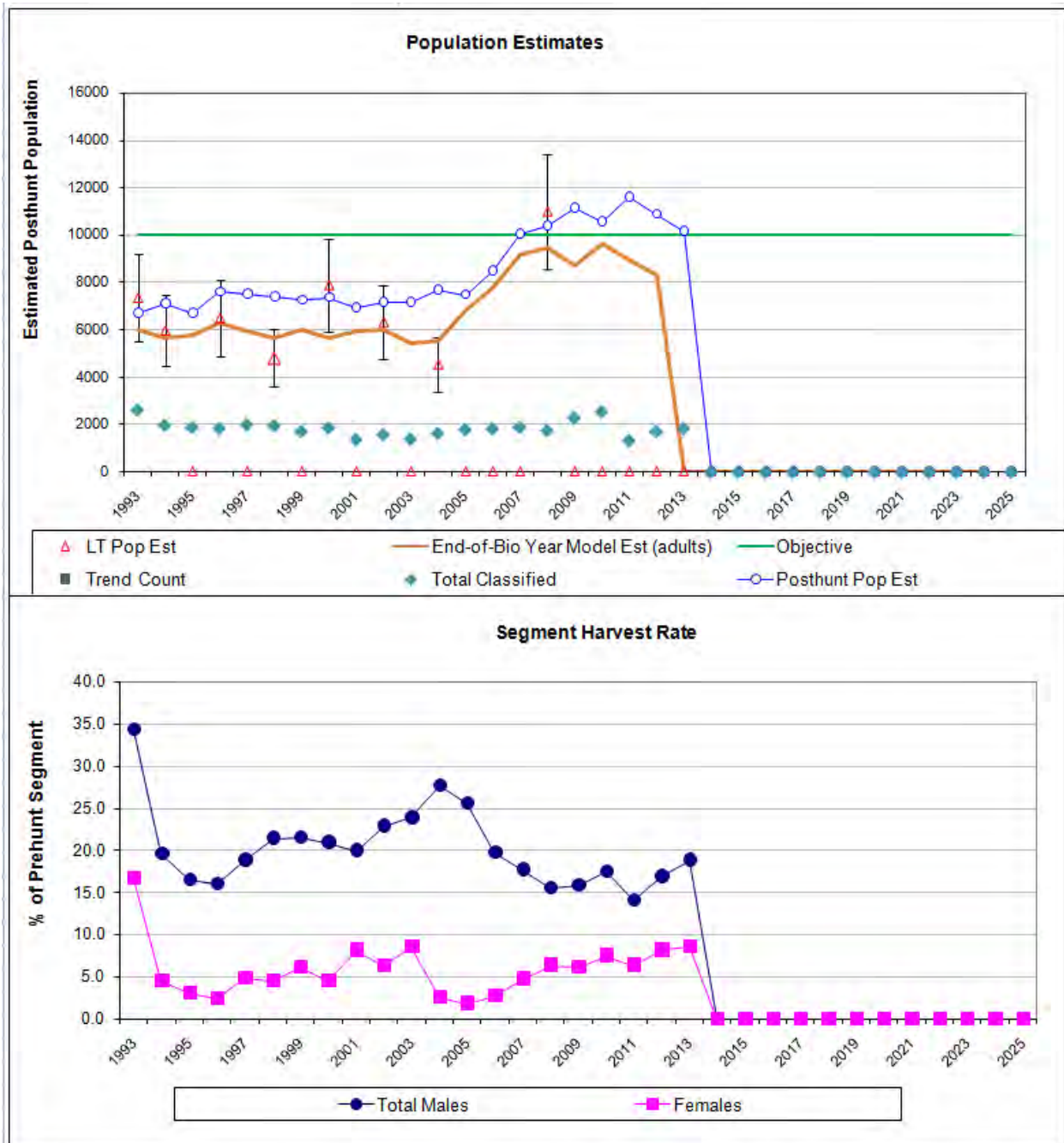
Wounding Loss (total males) = 10%

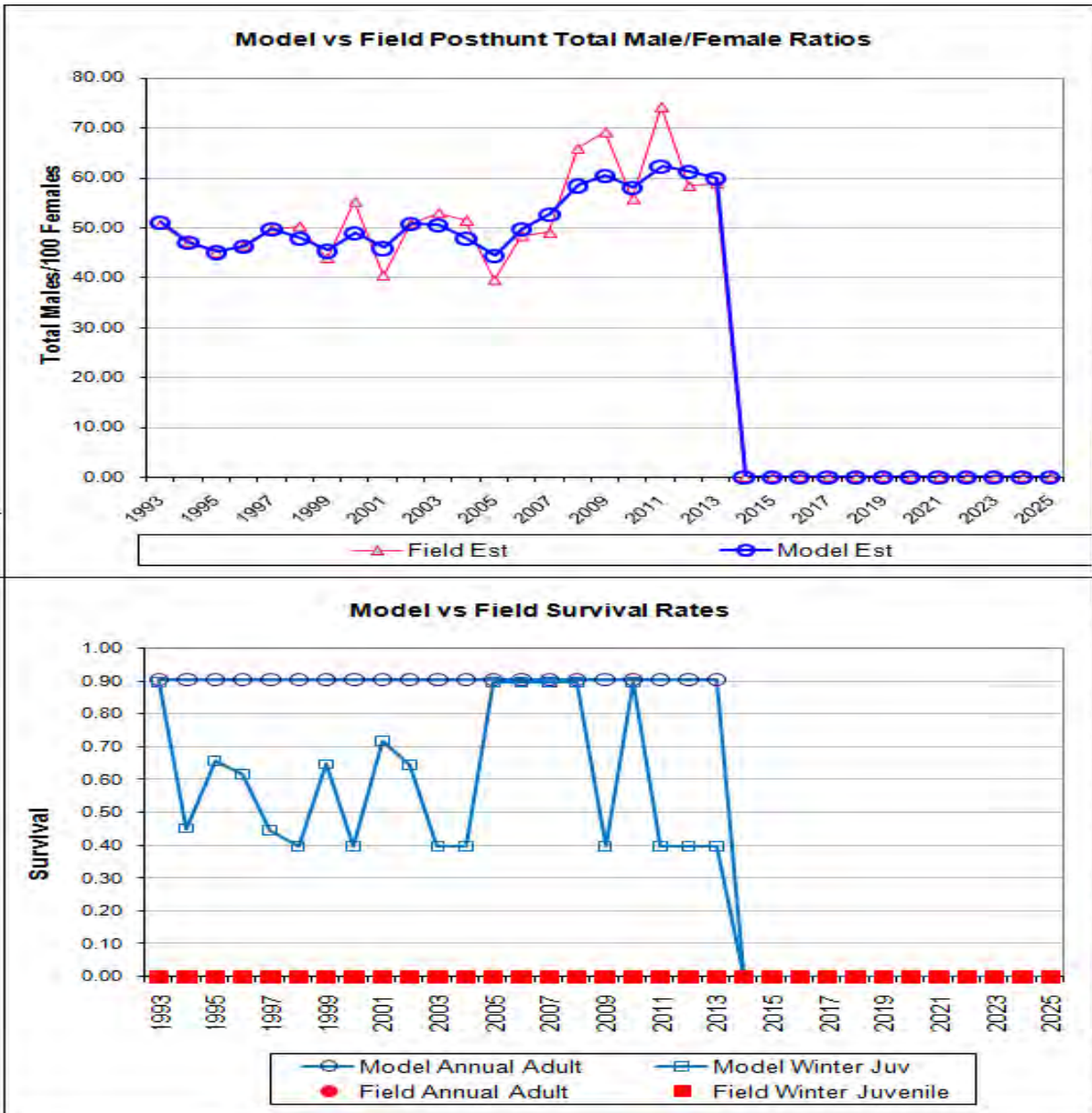
Wounding Loss (females) = 10%

Wounding Loss (juveniles) = 10%

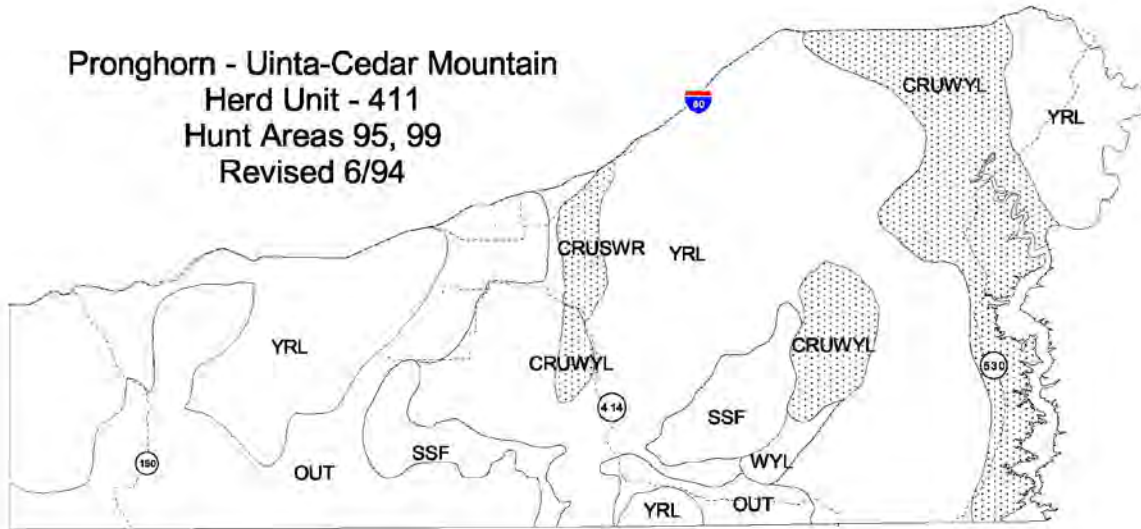
Over-summer adult survival = 98%

Classification Counts										Harvest	
Year	Juvenile/Female Ratio			Total Male/Female Ratio							
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	Total Harvest	Segment Harvest Rate (% of
1993		29.42	1.61	51.02	50.65	2.28	745	710	145	1600	34.3
1994		44.47	2.49	47.11	47.06	2.58	335	164	23	522	19.5
1995		41.16	2.39	45.11	44.99	2.53	259	108	20	387	16.5
1996		60.67	3.30	46.37	46.37	2.75	260	84	13	357	16.0
1997		47.74	2.63	49.79	49.71	2.70	351	181	42	574	18.8
1998		54.70	2.97	47.81	50.21	2.81	367	162	5	534	21.4
1999		61.09	3.42	45.33	43.89	2.74	339	214	23	576	21.5
2000		51.98	2.95	48.89	55.18	3.07	369	165	27	561	20.9
2001		55.74	3.51	45.90	40.43	2.84	317	282	65	664	20.0
2002		52.94	3.22	50.77	50.77	3.13	408	222	26	656	22.9
2003		53.99	3.51	50.63	52.96	3.46	429	303	22	754	23.9
2004		81.11	4.57	47.83	51.42	3.33	434	83	10	527	27.7
2005		68.48	3.65	44.34	39.49	2.52	387	62	21	470	25.6
2006		53.14	3.00	49.75	48.29	2.81	400	109	19	528	19.8
2007		63.76	3.42	52.80	48.99	2.86	424	216	51	691	17.7
2008		41.58	2.63	58.46	65.84	3.59	469	330	92	891	15.5
2009		48.21	2.60	60.48	69.15	3.32	505	326	48	879	15.9
2010		55.07	2.65	58.11	55.73	2.67	501	370	15	886	17.5
2011		52.46	3.69	62.30	74.19	4.68	464	338	29	831	14.0
2012		57.57	3.37	61.27	58.32	3.40	513	405	405	946	16.9
2013		58.82	3.32	60.00	58.82	3.32	525	400	400	955	18.8
2014											8.6





Pronghorn - Uinta-Cedar Mountain
Herd Unit - 411
Hunt Areas 95, 99
Revised 6/94



2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR412 - SOUTH ROCK SPRINGS

HUNT AREAS: 59, 112

PREPARED BY: PATRICK
BURKE

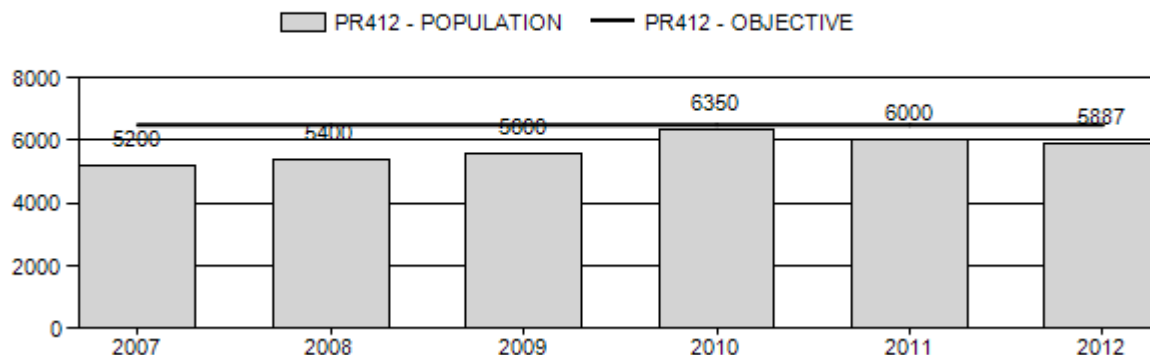
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	5,710	5,887	6,379
Harvest:	432	389	340
Hunters:	440	399	375
Hunter Success:	98%	97%	91 %
Active Licenses:	488	422	375
Active License Percent:	89%	92%	91 %
Recreation Days:	1,491	1,324	1,250
Days Per Animal:	3.5	3.4	3.7
Males per 100 Females	49	41	
Juveniles per 100 Females	45	54	

Population Objective: 6,500
 Management Strategy: Recreational
 Percent population is above (+) or below (-) objective: -9.4%
 Number of years population has been + or - objective in recent trend: 4
 Model Date: 2/20/2013

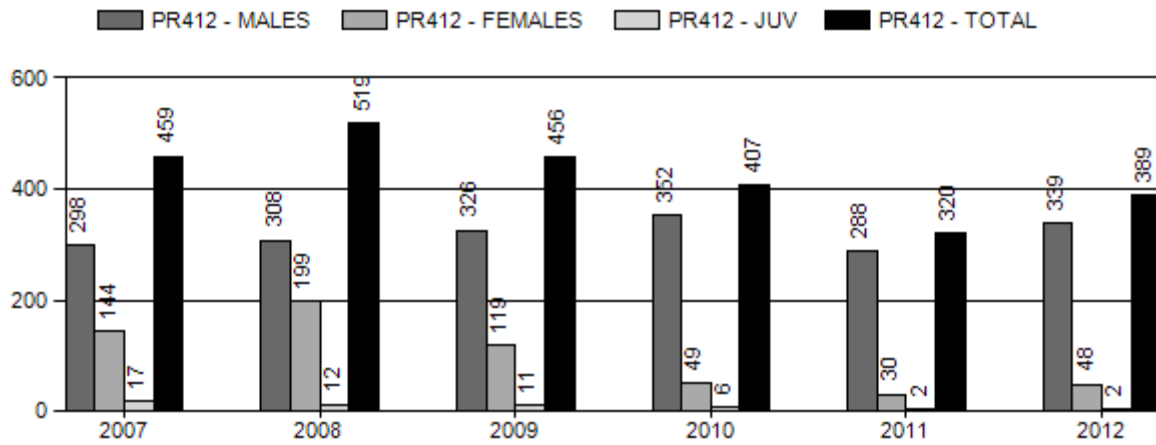
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	.8%	0%
Males ≥ 1 year old:	17%	24.7%
Juveniles (< 1 year old):	.1%	0%
Total:	4.3%	5.0%
Proposed change in post-season population:	-1.9%	6.9%

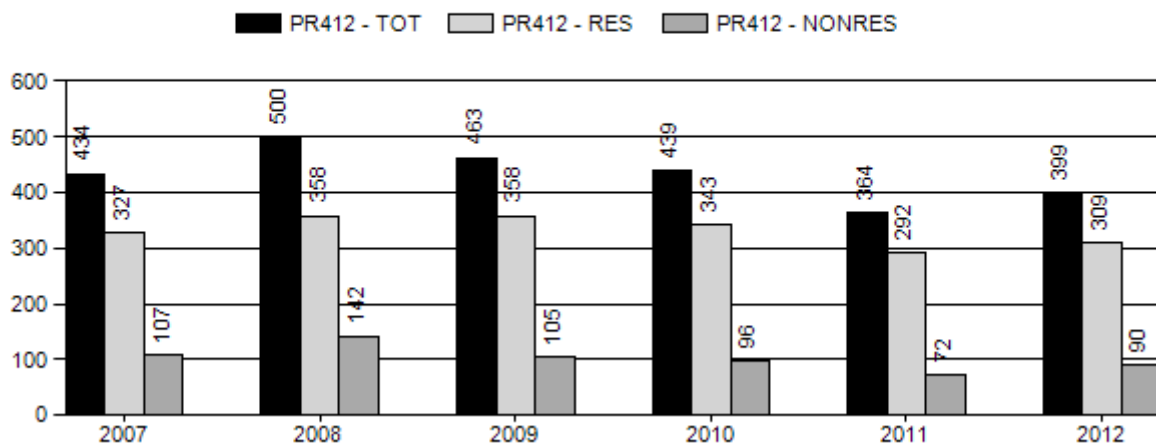
Population Size - Postseason



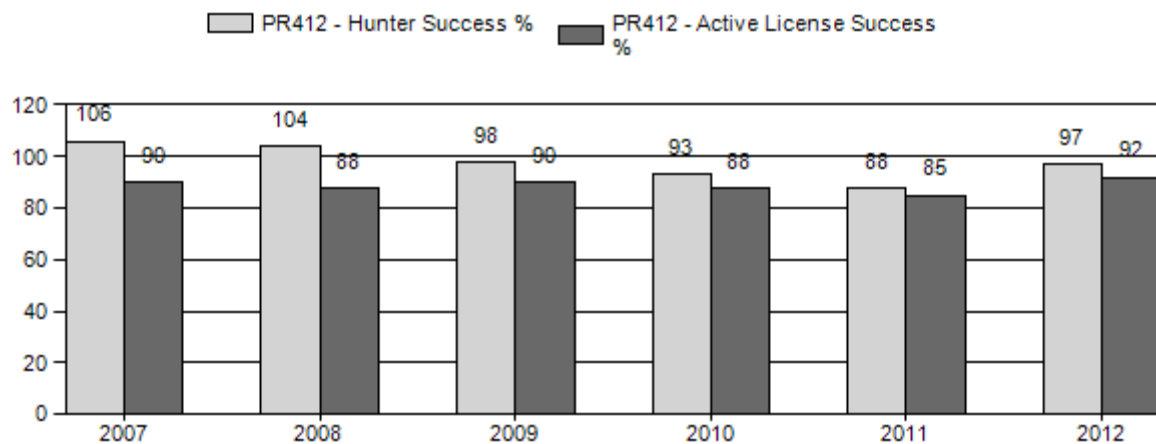
Harvest



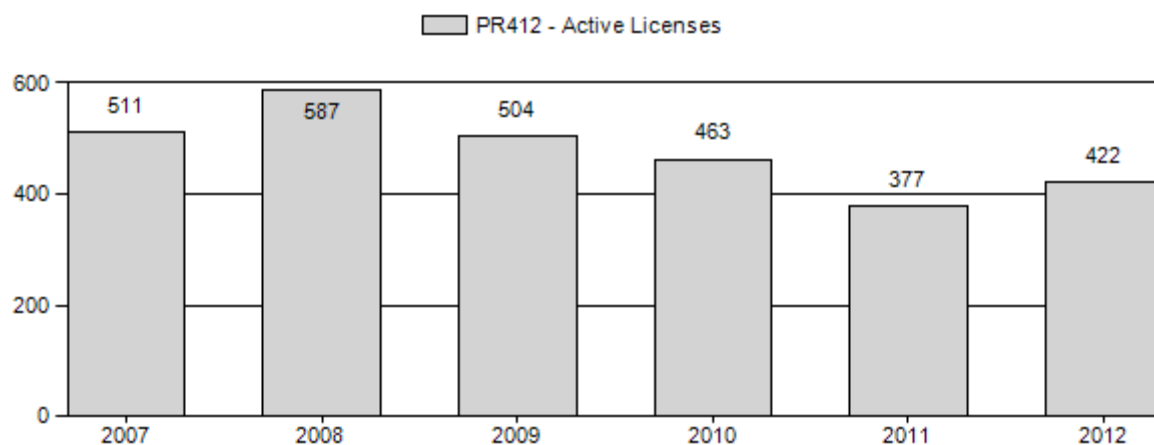
Number of Hunters



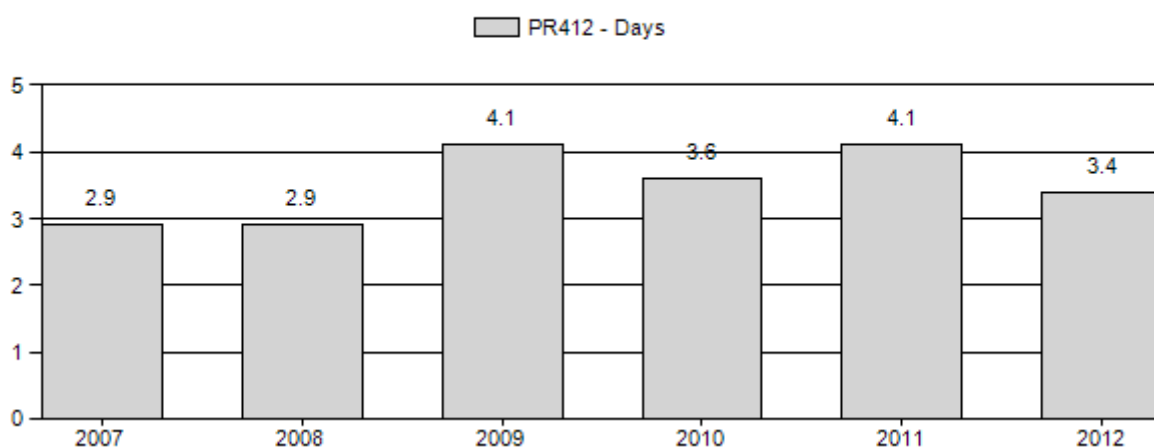
Harvest Success



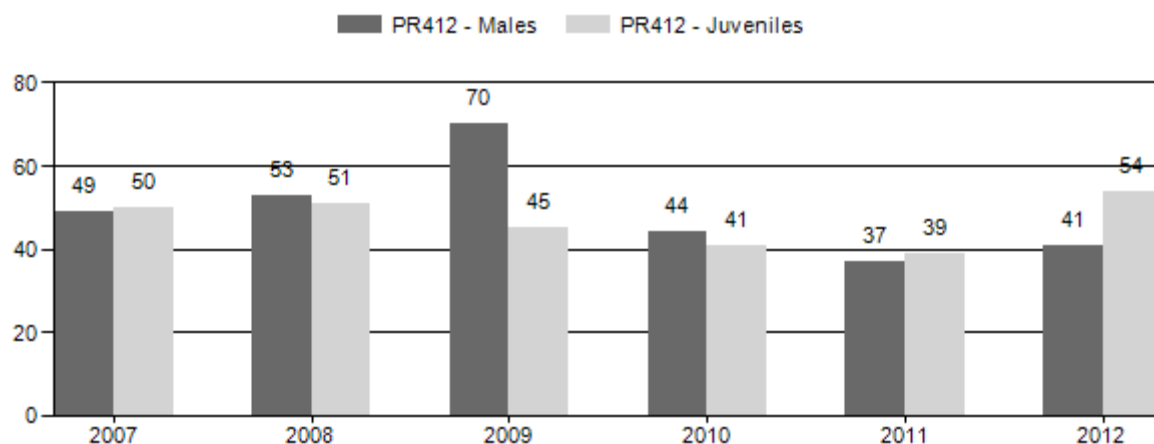
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2013 HUNTING SEASONS
SOUTH ROCK SPRINGS PRONGHORN HERD (PR412)

Hunt					
Area	Type	SEASON DATES		Quota	Limitations
		Opens	Closes		
59	1	Sept. 20	Oct. 31	225	Limited quota; any antelope
112	1	Sept. 20	Oct. 31	150	Limited quota; any antelope
<hr/>					
Archery :		Aug. 15	Sept. 19		Refer to license type and limitations in Section 3.
<hr/>					

Hunt Area	Type	Quota change from 2012
59	6	-25
112	6	-25
Herd Unit Total	6	-50

Management Evaluation

Current Management Objective: 6,500

Management Strategy: Recreational

2012 Postseason Population Estimate: ~5,900

2013 Proposed Postseason Population Estimate: ~6,400

The post-season population objective for the South Rock Springs pronghorn herd is 6,500 animals under recreational management. The objective for this herd was adopted in 2002.

Herd Unit Issues

The 2012 post-season modeled population estimate for this herd is about 5,900 pronghorn. Three years of higher than average fawn production from 2004-2006 caused this herd to grow during the late 2000's. Since then, lower observed fawn to doe ratios and increased doe harvest caused this herd to decline up until 2012 when higher observed fawn ratios allowed this herd to increase some in size.

Weather

During the 2010-2011 winter, this herd experienced tougher than normal winter conditions. During normal winters this herd winters in Wyoming, however because of deep and crusted snow conditions, a good portion of this herd migrated south into Colorado during that winter. The harsh winter conditions of the 2010-2011 winter may have caused many of the pregnant does to reabsorb or abort their fetuses, potentially causing the low fawn ratios observed in the 2011 pre-season classifications. The 2011-2012 winter by comparison for the most part was mild and relatively dry and probably resulted in lower than average winter mortality rates for the herd. The summer of 2012 was extremely dry with long periods of time elapsing between precipitation events throughout the summer. This lack of moisture was especially evident in areas of the herd unit below 8,000 ft, while the higher elevation portions of the herd unit received enough snow and summer precipitation to allow for some plant growth. Fortunately, many of the important parturition areas for this herd are above that altitude, which probably accounts for the higher fawn ratio seen in 2012.

Habitat

No habitat transects targeting pronghorn ranges were conducted in the South Rock Springs Pronghorn Herd Unit. However, the summer of 2012 was one of the driest summers on record in Wyoming. This lack of moisture was especially evident in areas of the herd unit below 8,000 ft, while the higher elevation parturition areas for the herd unit received enough snow and summer precipitation to allow for some plant growth. This probably resulted in fewer fawns dying to cold, wet conditions during the early summer and could be the cause for the slightly improved fawn ratios seen in 2012. The drought conditions at the lower elevation winter ranges of the herd unit may affect this herd to some extent most likely in the form of lower fawn ratios in 2013 caused by poorer condition of does during gestation. However, it is still too early to estimate to what extent the poor winter range plant growth will affect this herd in the future.

Field Data

Preseason classifications conducted in August 2012 resulted in observed fawn to doe ratios of 54 fawns per 100 does. While this observed ratio is not as high as the ratios seen from 2004-2006 when the population was higher, it is a significant improvement over ratios seen in recent years, especially over the 39 fawns per 100 does observed in 2011.

Harvest Data

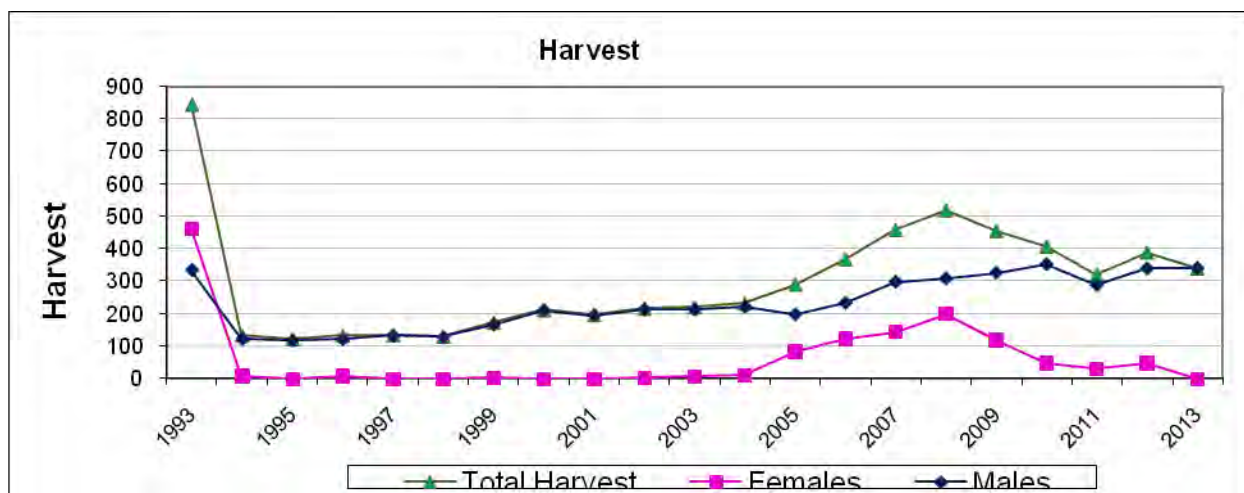
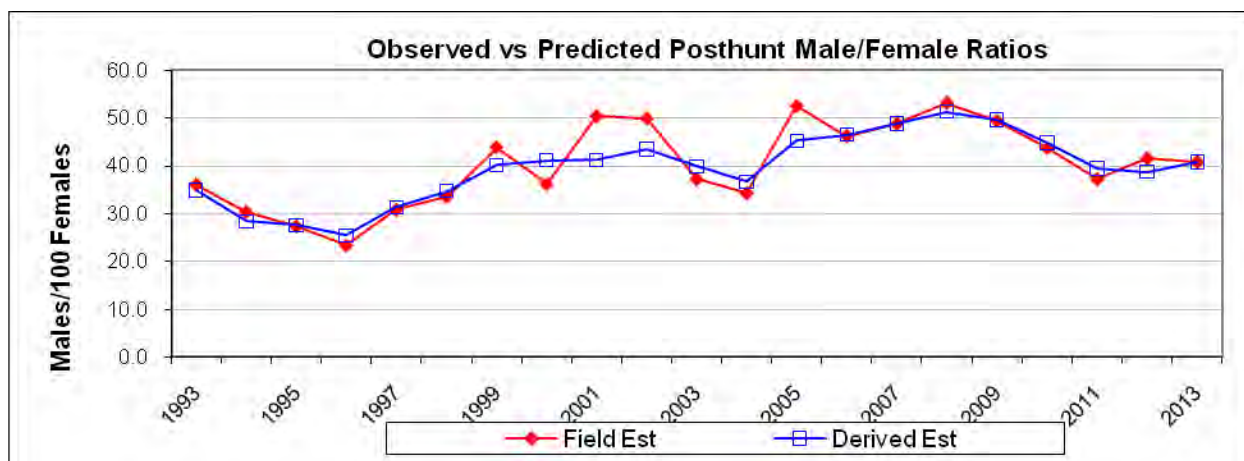
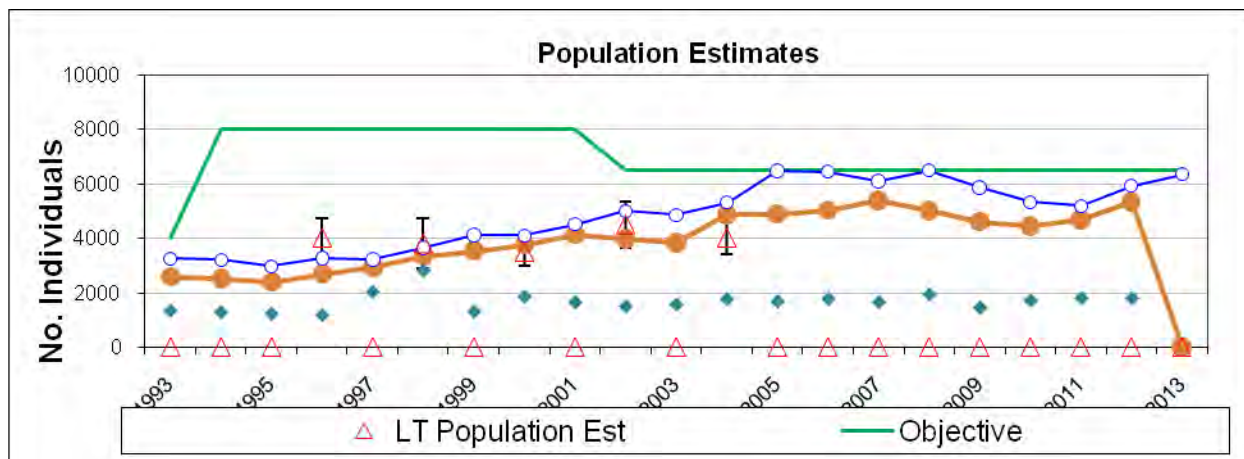
Harvest statistics for the 2012 hunting season were generally consistent with statistics for this herd for the last several years. The total number of pronghorn harvested in 2012 was lower than levels seen in the last few years, but this can be explained by the decrease in the number of Type 6 licenses offered in the herd unit. Days per animal harvested was slightly higher than what has been seen in the recent past at 3.4 days per harvest (compared to 2.9 in 2007 and 2008), but was lower than the 4.1 days per harvest recorded in 2011. This may be a result of license holders being more selective in 2012 since the harvest success rate increased to 92% suggesting that hunters were able to locate and successfully harvest pronghorn across the herd unit.

Population

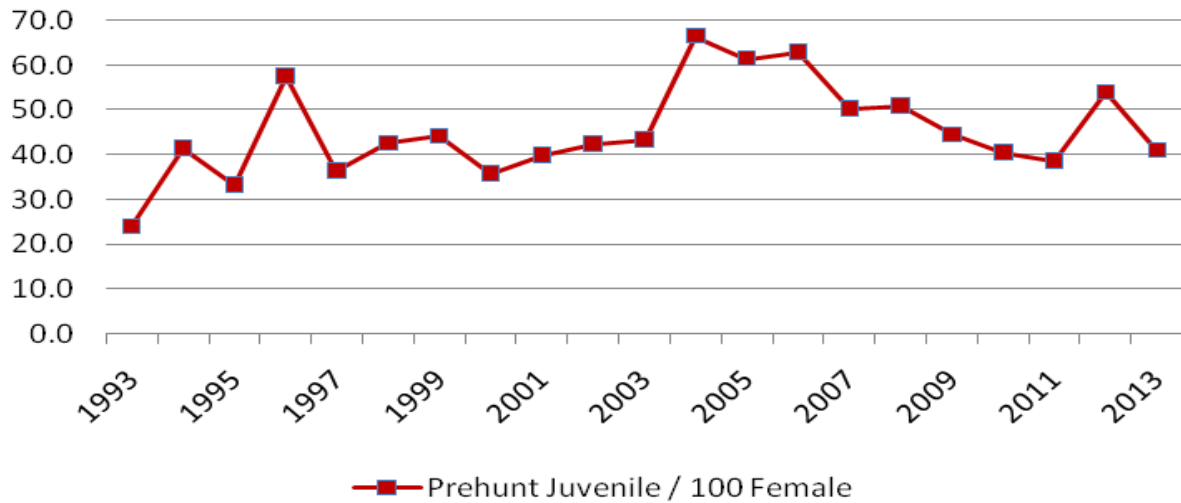
The model for this population tracks fairly well with observed data with the exception of several years of observed buck ratios that are simply higher than the model can accommodate. The time-specific juvenile survival model was selected for this herd because of its relative AIC value and because that model best fit the field observations of the population.

Management Summary

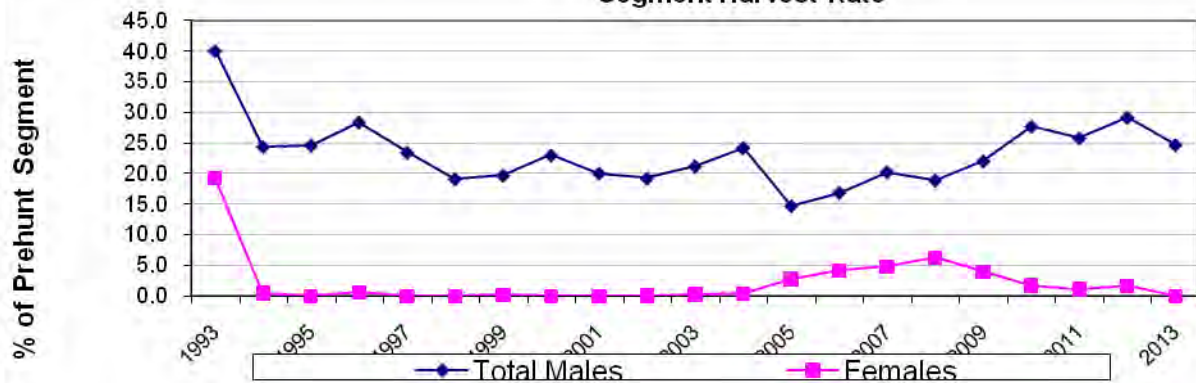
The season for 2013 eliminates the Type 6 licenses for this herd. It is anticipated that the elimination of doe harvest in 2013 along with hopefully continued fawn ratios above 40 fawns per 100 does will allow the population to grow to near objective. The 2013 season also includes maintaining the Type 1 licenses for both hunt areas in the herd unit at the levels they have been at since 2011. This level of male harvest should keep buck to doe ratios within the recreational management range.



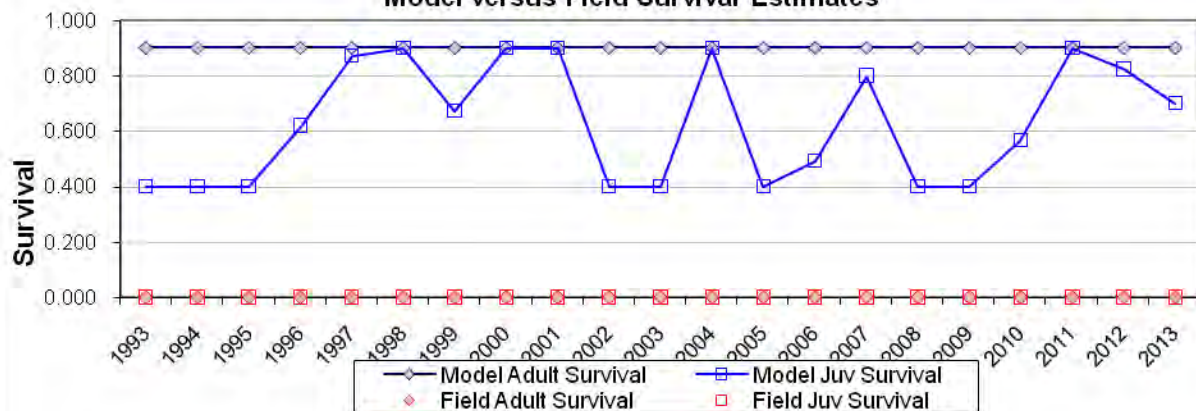
Prehunt Juvenile / 100 Female

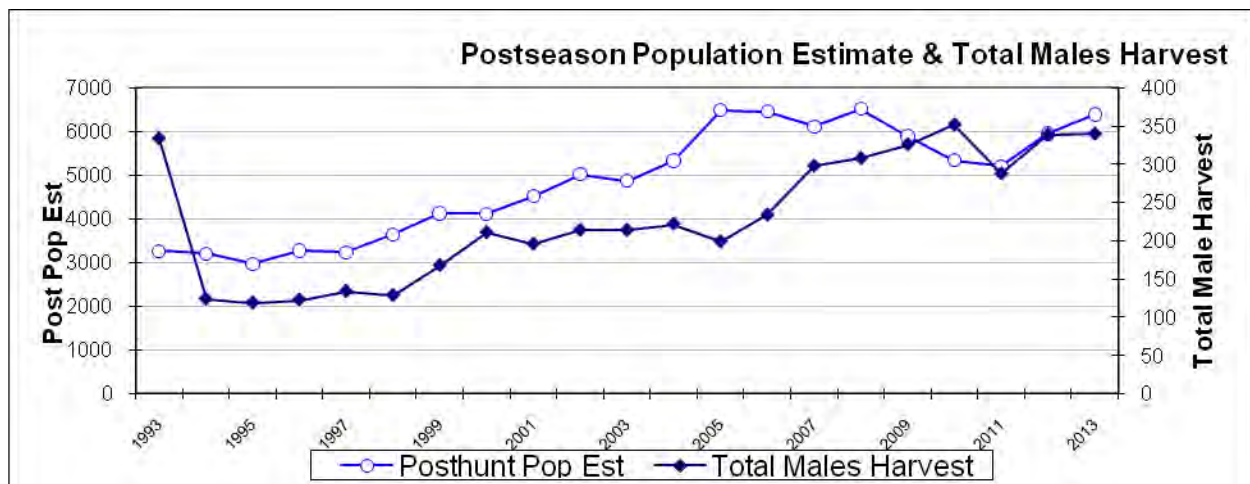


Segment Harvest Rate



Model versus Field Survival Estimates





INPUT	
Species:	Pronghorn
Biologist:	Patrick Burke
Herd Unit & No.:	PR412 SRS
Model date:	02/22/13

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	110	119	<input type="checkbox"/> CJ,CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	39	1759	<input type="checkbox"/> SCJ,SCA Mod	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	41	143	<input checked="" type="checkbox"/> TSJ,CA Model	

Population Estimates from Top Model												
Year	Predicted Prehunt Population (year <i>t</i>)			Total	Predicted Posthunt Population (year <i>t</i>)			Total	Predicted adult End-of-bio-year Pop (year <i>t</i>)			LT Populati Field Est
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	
1993	637	917	2637	4191	580	550	2132	3262	570	2014	2584	
1994	818	559	1973	3350	818	422	1965	3205	542	1975	2517	
1995	644	531	1935	3111	642	400	1935	2978	486	1912	2398	
1996	1079	476	1874	3429	1079	341	1864	3283	641	2056	2697	4022
1997	736	629	2015	3380	736	481	2015	3232	756	2183	2939	
1998	912	741	2139	3792	912	599	2139	3651	956	2388	3345	3812
1999	1034	937	2341	4312	1034	752	2336	4123	1029	2506	3535	
2000	880	1009	2455	4345	880	777	2455	4112	1096	2665	3761	3502
2001	1045	1074	2611	4730	1045	859	2611	4515	1249	2884	4133	
2002	1199	1224	2826	5249	1199	988	2824	5011	1131	2844	3976	4507
2003	1210	1108	2788	5106	1210	873	2781	4864	1027	2807	3834	
2004	1825	1007	2750	5583	1825	763	2739	5328	1516	3359	4875	4020
2005	2021	1486	3292	6799	2013	1267	3200	6480	1553	3345	4898	
2006	2061	1522	3278	6861	2049	1264	3143	6456	1650	3391	5041	
2007	1672	1617	3324	6612	1653	1289	3165	6107	1827	3571	5398	
2008	1784	1790	3500	7074	1771	1452	3281	6503	1660	3356	5016	
2009	1464	1627	3289	6380	1452	1268	3158	5878	1424	3187	4611	
2010	1268	1396	3123	5787	1261	1009	3069	5339	1253	3183	4436	
2011	1206	1228	3119	5553	1204	911	3086	5201	1304	3372	4675	
2012	1783	1278	3304	6365	1781	905	3252	5937	1544	3792	5336	
2013	1524	1513	3716	6753	1524	1139	3716	6379				
2014												
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												

Survival and Initial Population Estimates						
Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.40			0.90		
1994	0.40			0.90		
1995	0.40			0.90		
1996	0.62			0.90		
1997	0.87			0.90		
1998	0.90			0.90		
1999	0.67			0.90		
2000	0.90			0.90		
2001	0.90			0.90		
2002	0.40			0.90		
2003	0.40			0.90		
2004	0.90			0.90		
2005	0.40			0.90		
2006	0.49			0.90		
2007	0.80			0.90		
2008	0.40			0.90		
2009	0.40			0.90		
2010	0.57			0.90		
2011	0.90			0.90		
2012	0.82			0.90		
2013	0.70			0.90		
2014						
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						

Parameters:

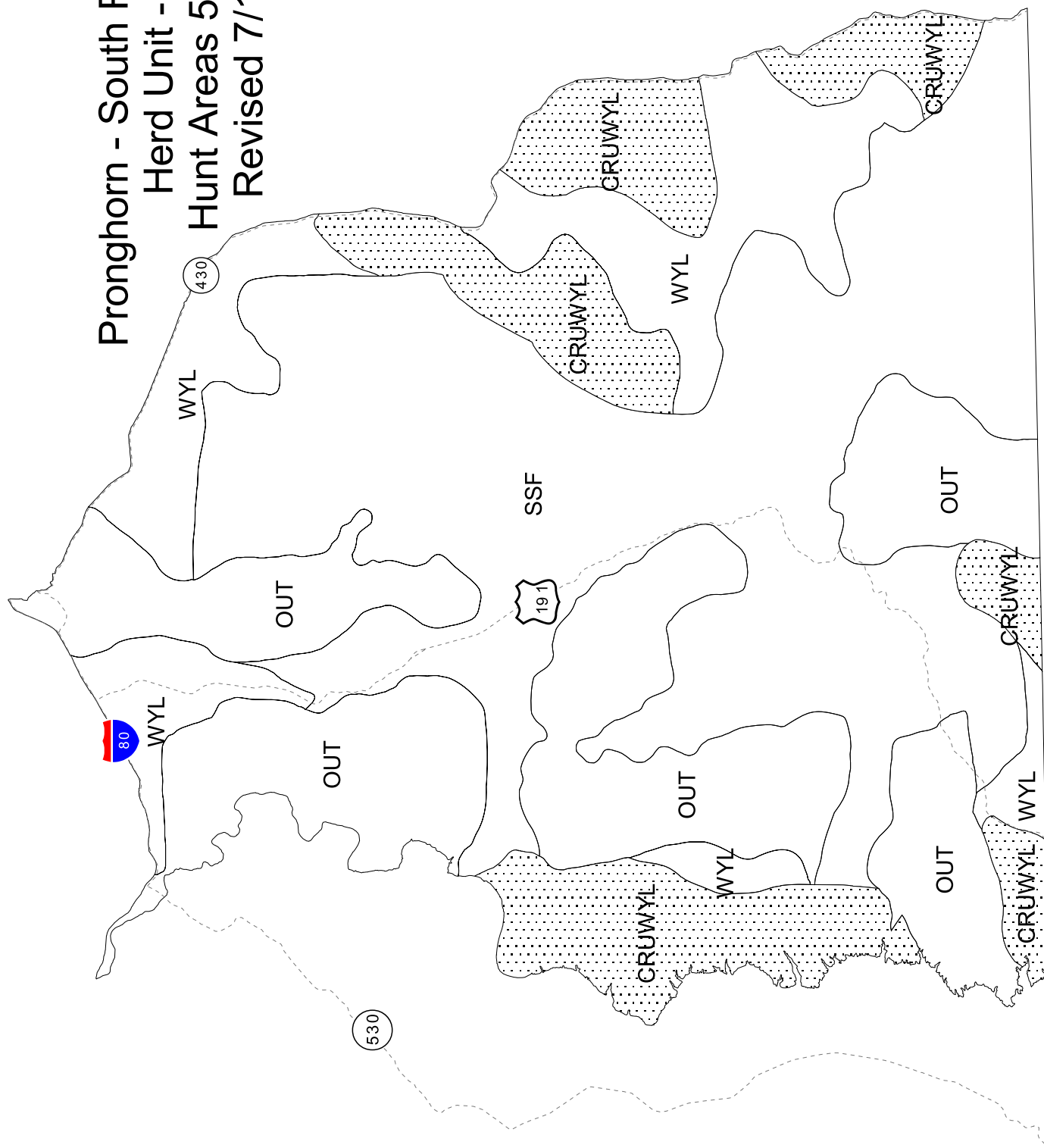
Adult Survival =	0.902
Initial Total Male Pop/10,000 =	0.092
Initial Female Pop/10,000 =	0.264

MODEL ASSUMPTIONS

Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

Classification Counts											Harvest	
Year	Juvenile/Female Ratio			Total Male/Female Ratio			Juv	Males	Females	Total Harvest	Segment Harvest Rate (% of	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE					Total Males	Females
1993		24.16	1.87	34.77	36.00	2.38	334	459	52	845	40.1	19.1
1994		41.45	2.76	28.31	30.31	2.26	124	8	0	132	24.4	0.4
1995		33.29	2.37	27.45	27.34	2.10	119	0	2	121	24.6	0.0
1996		57.57	3.67	25.41	23.29	2.06	123	9	0	132	28.4	0.5
1997		36.54	2.01	31.19	30.72	1.80	134	0	0	134	23.5	0.0
1998		42.63	1.94	34.64	33.46	1.66	129	0	0	129	19.1	0.0
1999		44.20	2.99	40.04	43.78	2.97	168	4	0	172	19.7	0.2
2000		35.85	2.11	41.09	36.12	2.12	211	0	0	211	23.0	0.0
2001		40.00	2.52	41.14	50.28	2.92	196	0	0	196	20.1	0.0
2002		42.43	2.75	43.30	49.81	3.06	214	2	0	216	19.2	0.1
2003		43.42	2.65	39.77	37.12	2.39	214	6	0	220	21.2	0.2
2004		66.37	3.50	36.60	34.18	2.26	222	10	0	232	24.3	0.4
2005		61.39	3.51	45.13	52.43	3.15	199	84	7	290	14.7	2.8
2006		62.86	3.44	46.42	46.14	2.79	234	123	11	368	16.9	4.1
2007		50.29	2.98	48.65	48.65	2.92	298	144	17	459	20.3	4.8
2008		50.98	2.82	51.16	53.04	2.89	308	199	12	519	18.9	6.3
2009		44.52	3.05	49.46	49.28	3.05	326	119	11	456	22.0	4.0
2010		40.59	2.45	44.70	43.64	2.57	352	49	6	407	27.7	1.7
2011		38.66	2.26	39.36	37.13	2.21	288	30	2	320	25.8	1.1
2012		53.95	2.98	38.66	41.45	2.50			48	389	29.2	1.6
2013		41.00	2.56	40.73	40.74	2.43			0	340	24.7	0.0
2014												
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												

Pronghorn - South Rock Springs Herd Unit - 412 Hunt Areas 59, 112 Revised 7/1999



2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR414 - BITTER CREEK

HUNT AREAS: 57-58

PREPARED BY: TONY MONG

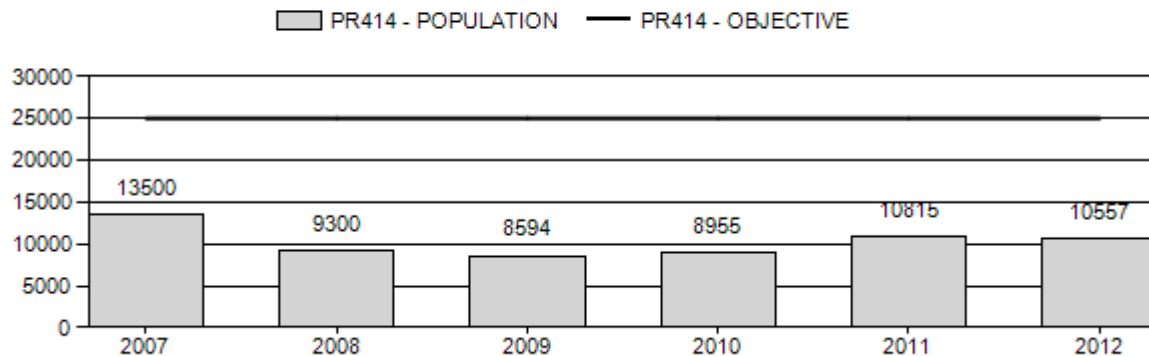
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	10,233	10,557	10,868
Harvest:	302	164	184
Hunters:	329	191	216
Hunter Success:	92%	86%	85%
Active Licenses:	339	191	216
Active License Percent:	89%	86%	85%
Recreation Days:	968	660	700
Days Per Animal:	3.2	4.0	3.8
Males per 100 Females	51	82	
Juveniles per 100 Females	39	23	

Population Objective: 25,000
 Management Strategy: Special
 Percent population is above (+) or below (-) objective: -57.8%
 Number of years population has been + or - objective in recent trend: 15
 Model Date: 05/28/2013

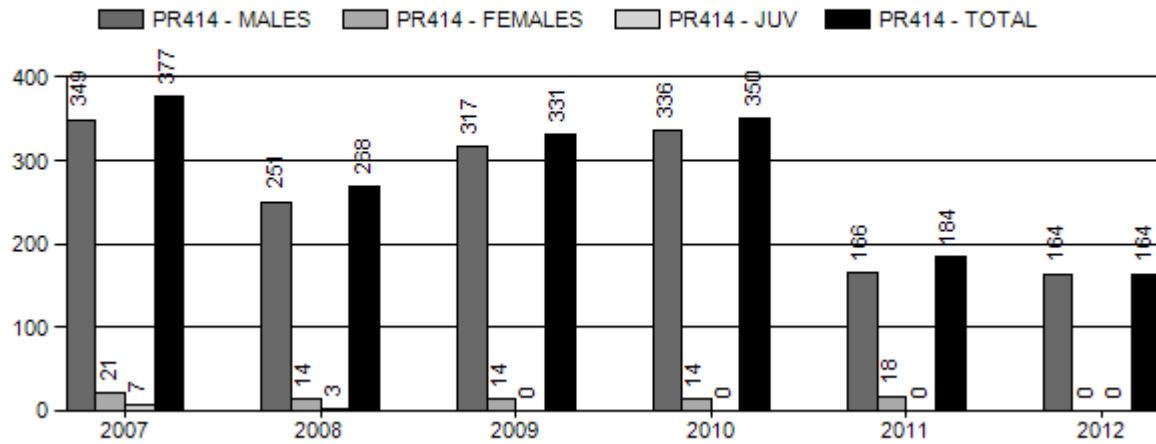
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	0%	0%
Males \geq 1 year old:	8.1%	6.5%
Juveniles (< 1 year old):	0%	0%
Total:	2.07%	2.0%
Proposed change in post-season population:	0.10%	3.5%

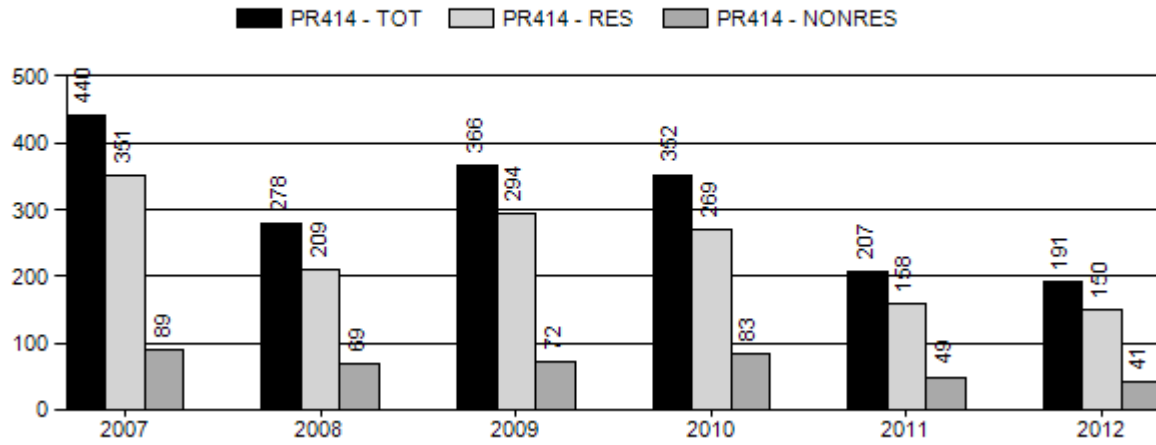
Population Size - Postseason



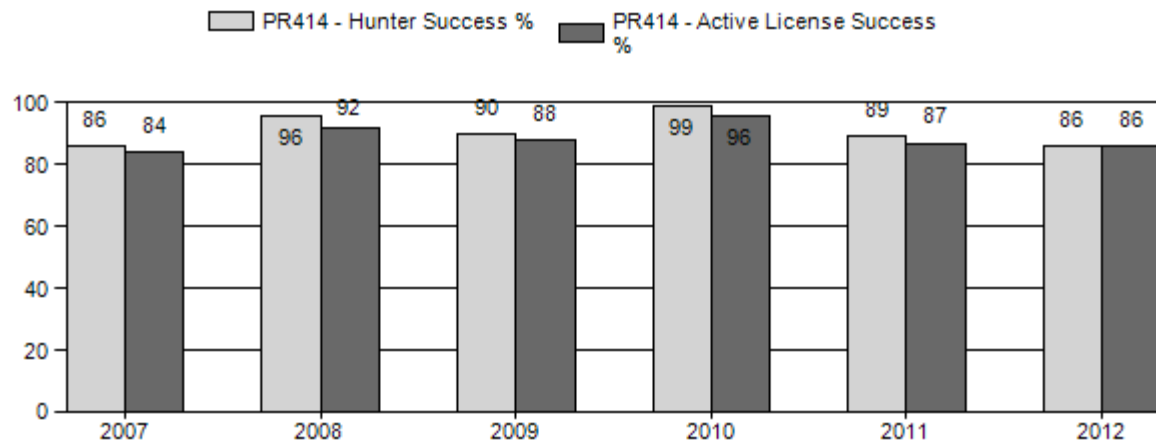
Harvest



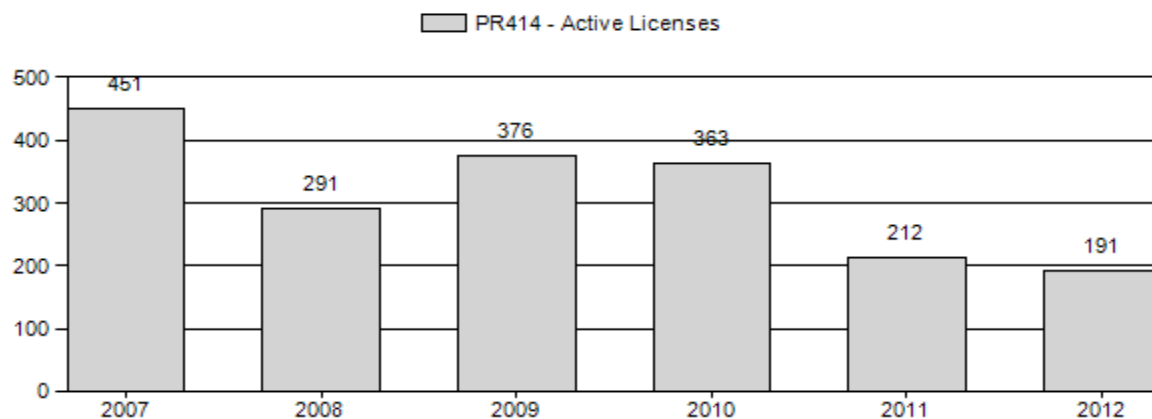
Number of Hunters



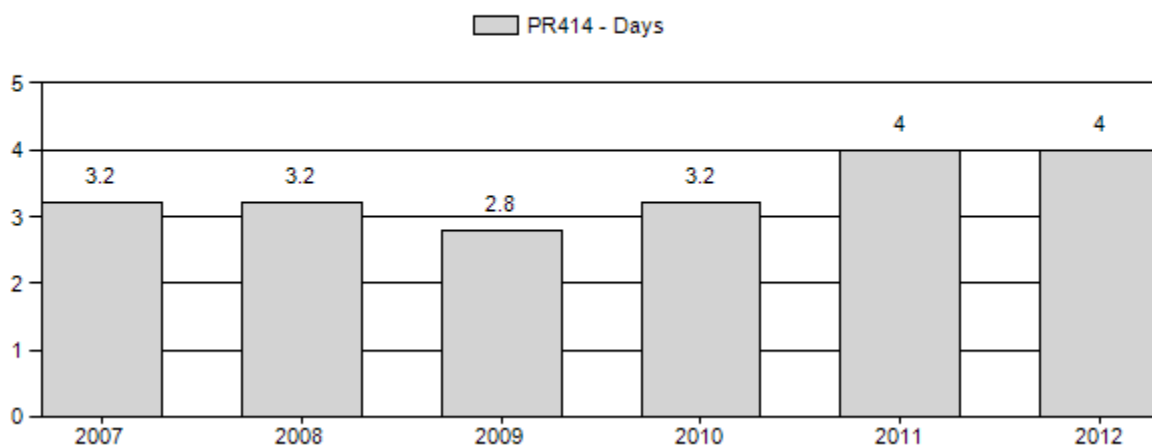
Harvest Success



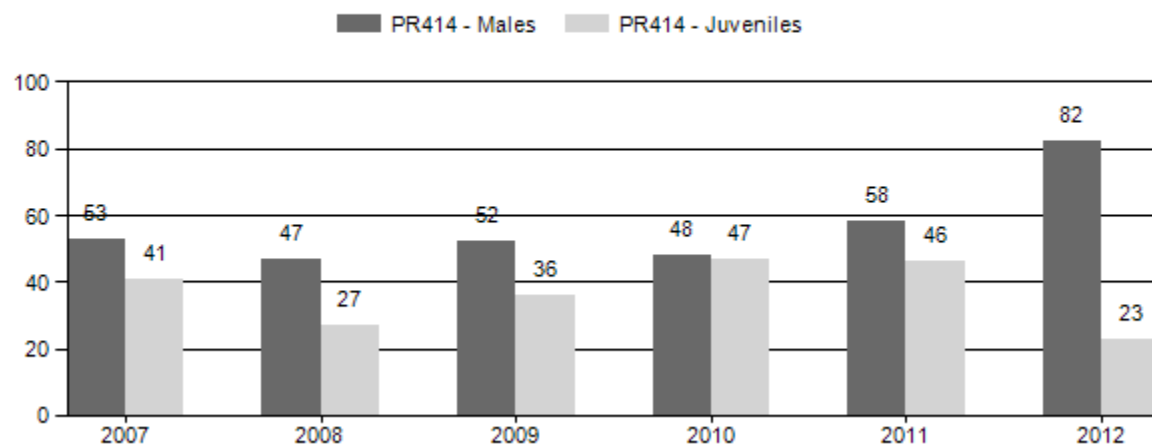
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2013 HUNTING SEASON

SPECIES : **Pronghorn**

HERD UNIT : **Bitter Creek (414)**

HUNT AREAS: **57, 58**

Hunt Area	Type	Opens	Closes	Quota	Limitations
57	1	Sept. 20	Oct. 31	200	Limited quota; any antelope
58	1	Sept. 20	Oct. 31	50	Limited quota; any antelope
57, 58	Archery	Aug. 15	Sept. 19		Refer to Section 3

Hunt Area	Type	Quota change from 2012
57	1	+50
Total	1	+50

Management Evaluation

Current Management Objective: 25,000

Management Strategy: Special

2012 End-of-bio-year Estimate: ~9,900

2013 Proposed Postseason Population Estimate: ~9,700

Herd Unit Issues

The Bitter Creek herd is below the objective of 25,000 (set in 1993), and conservative seasons will be continued to allow for maximum population growth. Type 1 licenses were increased in Hunt Area 57 given high buck:doe ratios and potential for more hunter opportunity.

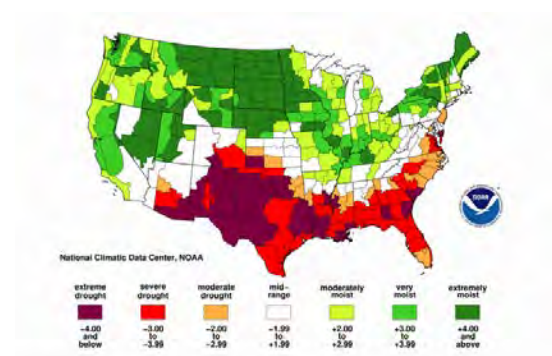
The Bitter Creek pronghorn herd continues to face many challenges through the expansion of the Continental Divide-Creston Junction (CDC) and Desolation Flats gas fields and competition with the large numbers of wild horses on the landscape. Currently there are nearly 9,000 wells in the CDC, with a proposal to increase this by an additional 8,950 infill wells. The majority of these wells occur on summer ranges and across migration routes for the Bitter Creek herd. New developments have begun to occur in relation to the Desolation Flats development, most notably along the Bitter Creek Rd and the Willow Creek Rim area. Plans are being implemented to create a new large pipeline to connect 2 new compressor stations that will be placed on and near Willow Creek Rim, some of the better pronghorn habitat in this herd unit. The number of proposals to work year-round on both of these sites has increased recently. Despite recent gathers of wild horses within the boundaries of the Bitter Creek herd, the number of horses is still alarming in this area of low productivity, and are at a level that is probably having an impact on pronghorn. The recent court decision regarding the Rock Springs Grazing Association lawsuit brought against the Bureau of Land Management may alleviate some competition from horses in this area. However, increasing landscape level impacts, and continued long-term drought are proving to be a challenge for the pronghorn in the Bitter Creek herd unit.

Weather

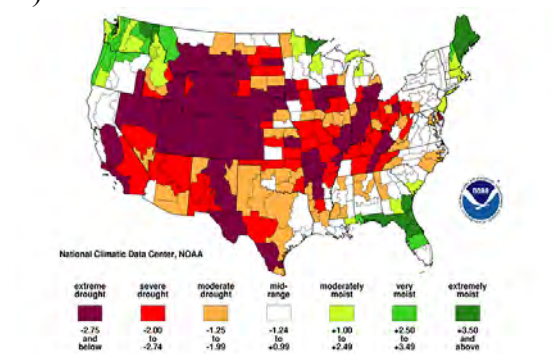
Within the past several years extreme weather conditions, especially winter weather events and extreme drought have resulted in very poor fawn fawn production and survival in this herd unit, some of the lowest in Wyoming. In 2010-11 moisture levels were at record highs with high snow levels and followed in 2011-12 with record extreme drought conditions and low snow levels (Figure 1).

Figure 1. A) Palmer short-term drought index from June 2011. B) Palmer short-term drought index from June 2012

A)



B)



Field Data

The Bitter Creek herd declined significantly during the 2007-08 winter and has been making a very slow recovery since. The past 4 years has seen an average total population of less than 9,000. Low productivity (average fawn:doe ratio has been 42:100 since 1994) has played a primary role in the inability of this population to increase. Additionally, severe winter and extreme drought conditions are hampering a population growth despite very conservative seasons. High variability in fawn production and buck ratios between hunt areas 57 and 58 are also problematic for this herd. Hunt Area 58 has had lower than desired buck ratios in both 2011 and 2012 (38 and 40:100 does, respectively) compared to Hunt Area 57 (65 and 82:100, respectively) indicating a dichotomy between the two areas in relation to population dynamics, productivity potential, and habitat conditions. This is also evident with fawn production in 2011 with Hunt Area 58 having a much lower fawn ratio (33:100) compared to hunt area 57 (56:100). However, in light of the 2012 drought, both areas 57 and 58 had very low fawn ratios in 2012 (30 and 23:100 respectively). Fawn productivity has been low in this herd unit for a number of

years due to increasing impacts, and numbers have been significantly lower than former levels since the early 1990s.

Harvest Data

Current and recent harvest management only impacts buck ratios in this herd unit given no or very minimal doe harvest. Slightly lower hunter success was observed in 2012 when compared to 2011 and the previous 5-year average (92%). This lower success is likely due, in-part, to hunter expectations and selectivity for larger horned bucks, especially in Hunt Area 57. This area has traditionally been known for large, trophy-class pronghorn. Anecdotally, horn growth was very poor in southwest Wyoming last year, and may have negatively influenced hunter success through reduced desire to harvest a smaller buck antelope.

Population

The current population model estimates the 2012 post-season estimate of around 10,500 (end-of-bio-year population = 9,700) pronghorn. Despite the CJ, CA model having the lowest relative AICc value (89), we chose the TSJ, CA (AICc = 103) model based since it provides a better representation of the actual population trend and size, and aligns better with line transect estimates obtained in 1993, 2003 and 2009. There is variability between the 3 models on the current EOY population estimation ranging from the low of the TSJ, CA (9,700) to a high in the CJ, CA model (11,100). The TSJ, CA model had the lowest penalties associated with the deviation from observed EOY population estimates generated from the line transect analysis (1.7, TSJ, CA; 13.4, CJ, CA; 17.1, SCJ, SCA). Despite model selection, it remains abundantly clear this population is well below the current post-season population objective of 25,000.

Within the TSJ, CA model, we allowed the model to select a lower estimated annual survival value (0.25) for juveniles than recommended in the User's manual from 1993 to 2006, which is consistent with field observations. There were 7 instances when the estimated annual survival fell below the recommended lower level of 0.4. We also constrained the model to have a lower survival during the winter of 2007-08 for both juveniles and adults (juvenile = 0.25 to 0.80, adult = 0.60 to 0.80).

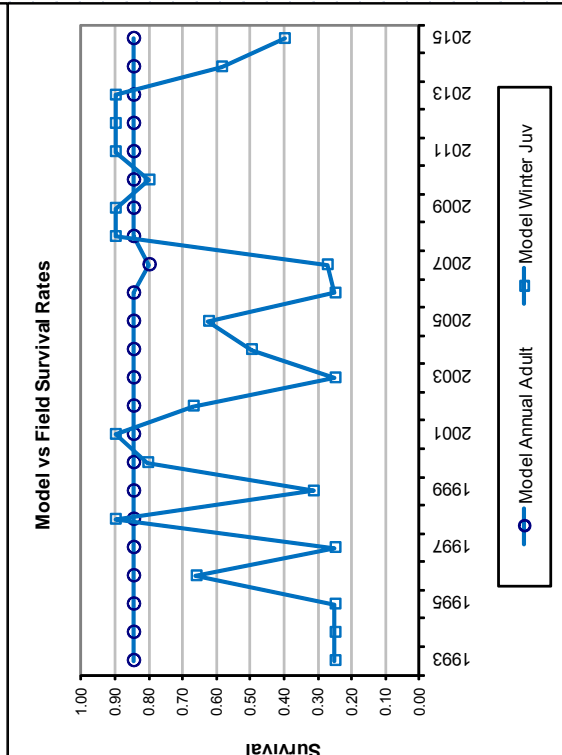
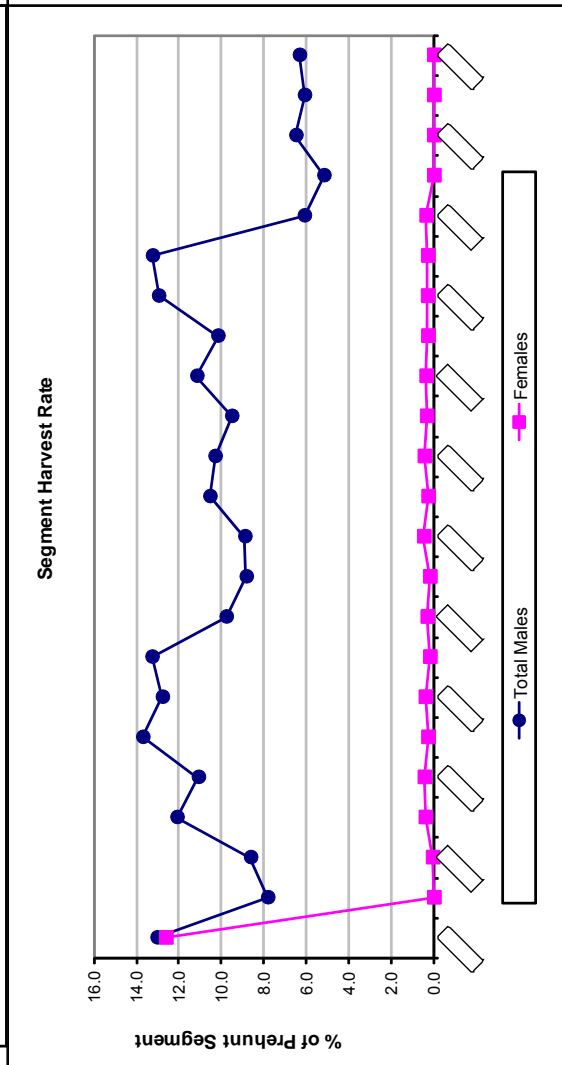
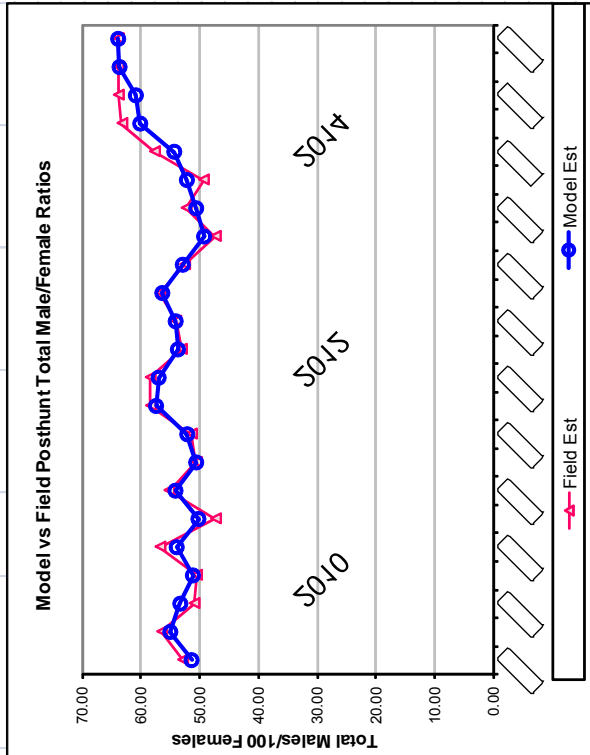
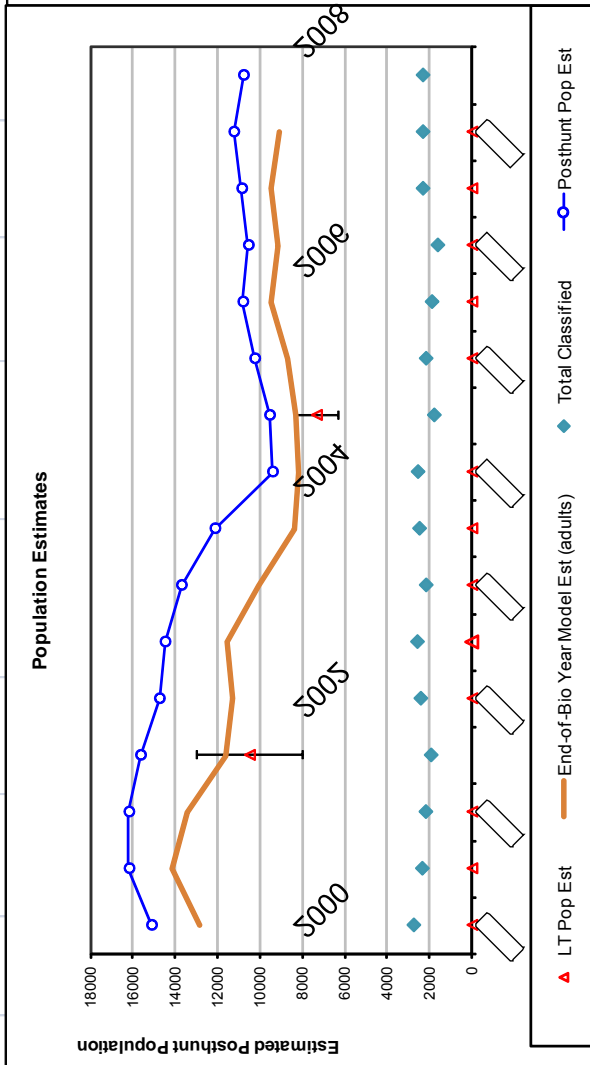
Management Summary

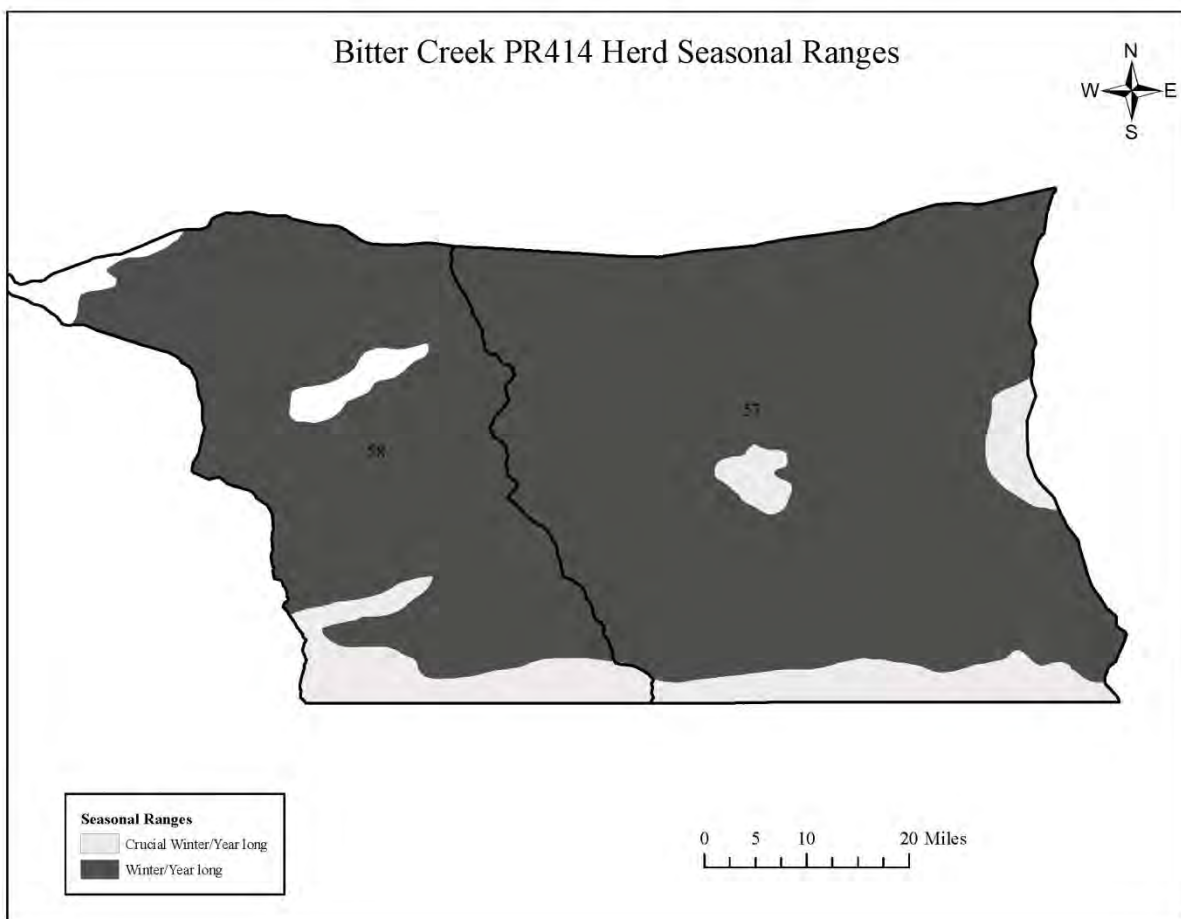
The proposed 2013 seasons will allow for continued maximum population growth. We are increasing Type 1 licenses in Hunt Area 57 due to very high buck ratios (in excess of special management criteria), to reduce intraspecific competition for very limited resources, and to allow more hunter opportunity. Doe licenses have not been issued since 2011, and no more than 36 does have been harvested in any one year since 1993. This harvest strategy should lead to the largest growth potential for the herd, barring major impacts from the landscape level challenges mentioned above. However, it should be recognized that the potential for this area to support higher pronghorn numbers is greatly impacted by the long list of current and increasing issues.

Survival and Initial Population Estimates									
Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates			Parameters:		
	Model Est	Field Est	SE	Model Est	Field Est	SE			
1993			0.25	0.85			Optim cells Adult Survival = 0.846 Initial Total Male Pop/10,000 = 0.735 Initial Female Pop/10,000 = 1.430		
1994			0.25	0.85					
1995			0.25	0.85					
1996			0.66	0.85					
1997			0.25	0.85			MODEL ASSUMPTIONS Sex Ratio (% Males) = 50% Wounding Loss (total males) = 10% Wounding Loss (females) = 10% Wounding Loss (juveniles) = 10% Over-summer adult survival 98%		
1998			0.90	0.85					
1999			0.31	0.85					
2000			0.80	0.85					
2001			0.90	0.85					
2002			0.67	0.85					
2003			0.25	0.85					
2004			0.50	0.85					
2005			0.62	0.85					
2006			0.25	0.85					
2007			0.27	0.80					
2008			0.90	0.85					
2009			0.90	0.85					
2010			0.80	0.85					
2011			0.90	0.85					
2012			0.90	0.85					
2013			0.90	0.85					
2014			0.59	0.85					
2015			0.40	0.85					

Classification Counts										Harvest		
Year	Juvenile/Female Ratio			Total Male/Female Ratio			Segment Harvest Rate (%)					
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Males	Juv	Females	Total Harvest	Total Males	Females
1993		56.09	2.26	51.40	52.94	2.17	871	1641	195	2707	13.0	12.6
1994		49.11	2.38	55.02	56.52	2.61	438	0	0	438	7.8	0.0
1995		45.31	1.95	53.32	51.01	2.10	425	5	0	430	8.6	0.1
1996		54.64	2.57	51.18	50.59	2.44	516	33	0	549	12.1	0.4
1997		42.08	2.11	53.94	56.80	2.58	510	38	0	548	11.1	0.4
1998		48.70	2.26	50.23	47.36	2.21	525	21	0	546	13.7	0.3
1999		48.35	2.16	54.15	55.29	2.36	561	32	3	596	12.8	0.4
2000		41.12	2.01	50.62	50.62	2.30	500	14	0	514	13.3	0.2
2001		49.24	2.50	52.15	51.44	2.57	383	23	5	411	9.8	0.3
2002		31.98	1.91	57.45	58.41	2.83	406	15	2	423	8.8	0.2
2003		35.56	2.19	57.01	58.47	3.04	386	36	2	424	8.9	0.5
2004		51.30	2.55	53.74	53.15	2.61	382	18	2	402	10.5	0.3
2005		53.24	2.55	54.12	54.12	2.58	365	29	2	396	10.3	0.4
2006		38.46	2.18	56.38	56.80	2.82	354	22	3	379	9.5	0.3
2007		41.26	2.13	52.91	52.60	2.50	347	21	7	375	11.2	0.4
2008		27.06	1.53	49.28	47.38	2.18	251	14	3	268	10.2	0.3
2009		36.02	2.27	50.61	52.36	2.89	317	14	0	331	13.0	0.3
2010		46.99	2.49	52.19	49.42	2.58	336	14	0	350	13.3	0.3
2011		45.57	2.66	54.35	57.74	3.12	166	18	0	184	6.1	0.4
2012		25.17	1.91	60.14	63.28	3.45	164	0	0	164	5.2	0.0
2013		38.54	2.15	60.89	63.89	3.01	200	0	0	200	6.5	0.0
2014		38.54	2.15	63.66	63.89	3.01	200	0	0	200	6.1	0.0
2015		38.54	2.15	63.89	63.89	3.01	200	0	0	200	6.3	0.0

FIGURES





2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR419 - CARTER LEASE

HUNT AREAS: 94, 98, 100

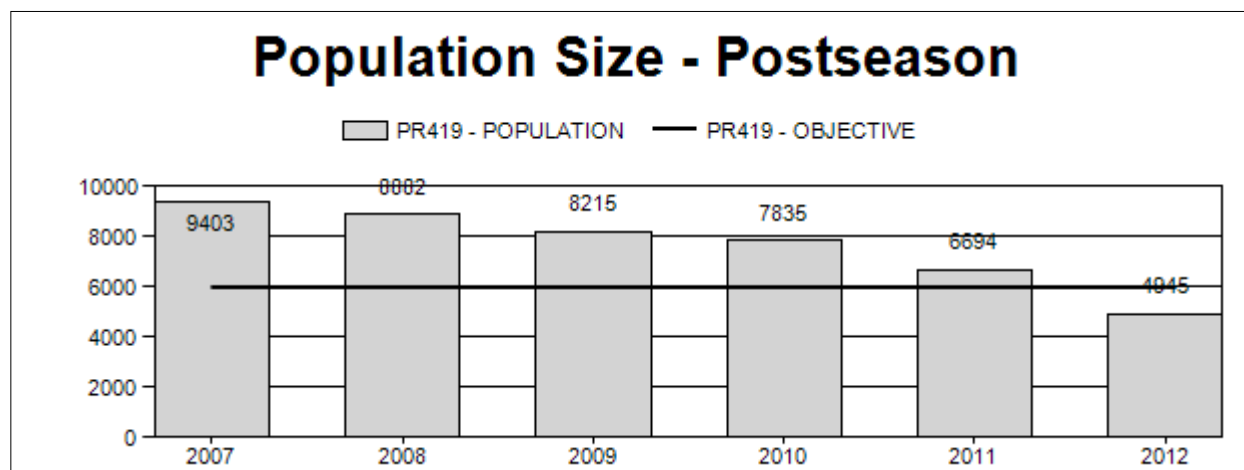
PREPARED BY: JEFF SHORT

	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	8,206	4,945	4,783
Harvest:	1,499	1,681	1,500
Hunters:	1,550	1,736	1,600
Hunter Success:	97%	97%	94%
Active Licenses:	1,730	1,930	1,800
Active License Percent:	87%	87%	83%
Recreation Days:	5,193	5,966	5,500
Days Per Animal:	3.5	3.5	3.7
Males per 100 Females	70	52	
Juveniles per 100 Females	70	47	

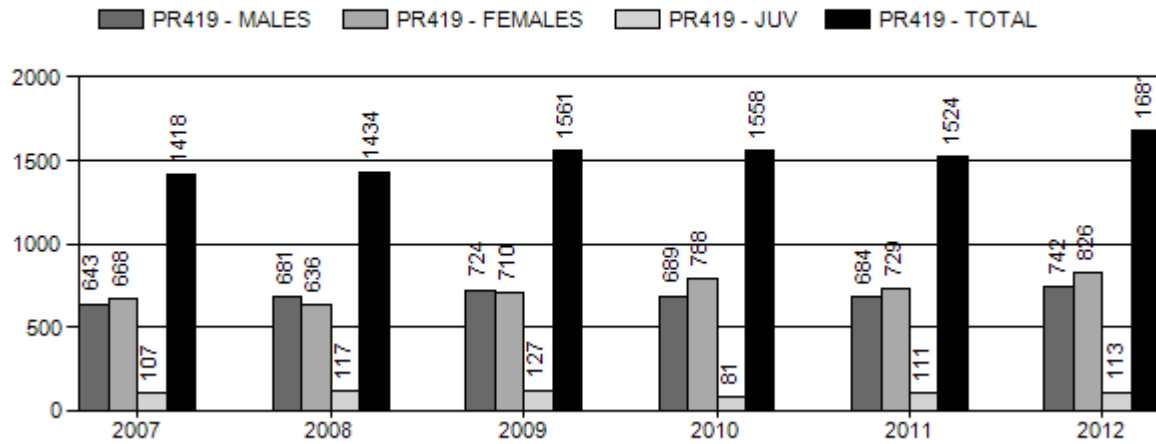
Population Objective: 6,000
 Management Strategy: Recreational
 Percent population is above (+) or below (-) objective: -17.6%
 Number of years population has been + or - objective in recent trend: 1
 Model Date: 03/07/2013

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

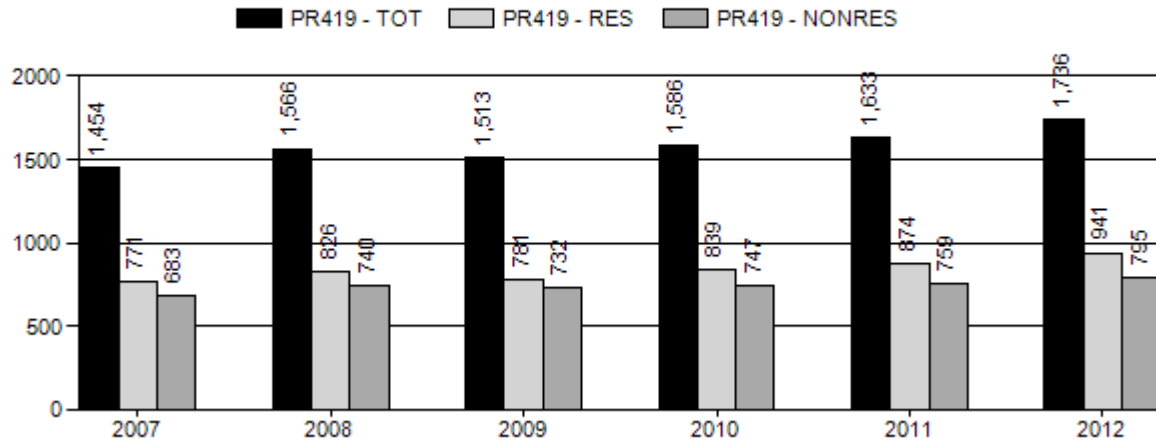
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	13.9%	18.2%
Males ≥ 1 year old:	21.2%	50.9%
Juveniles (< 1 year old):	3.1%	42.33%
Total:	13.03%	20.16%
Proposed change in post-season population:	-10.1%	-12.8%



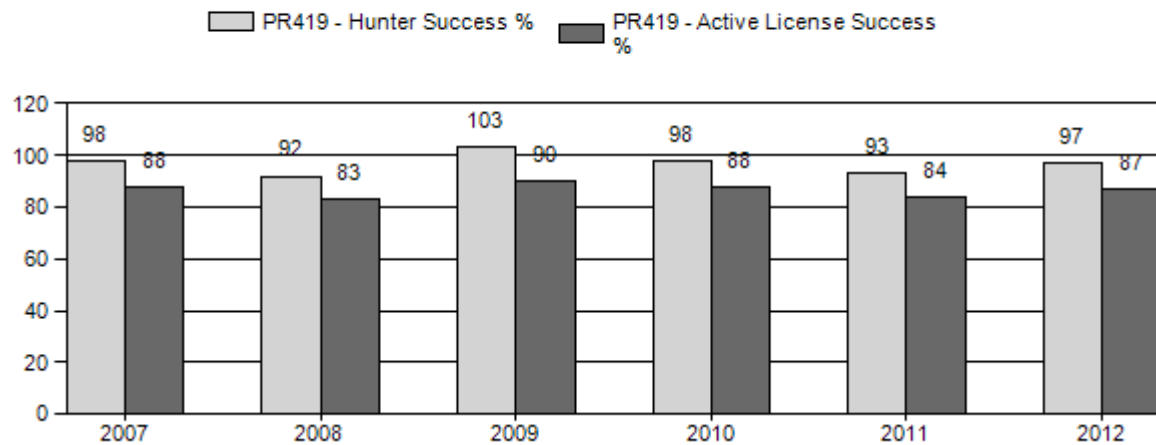
Harvest



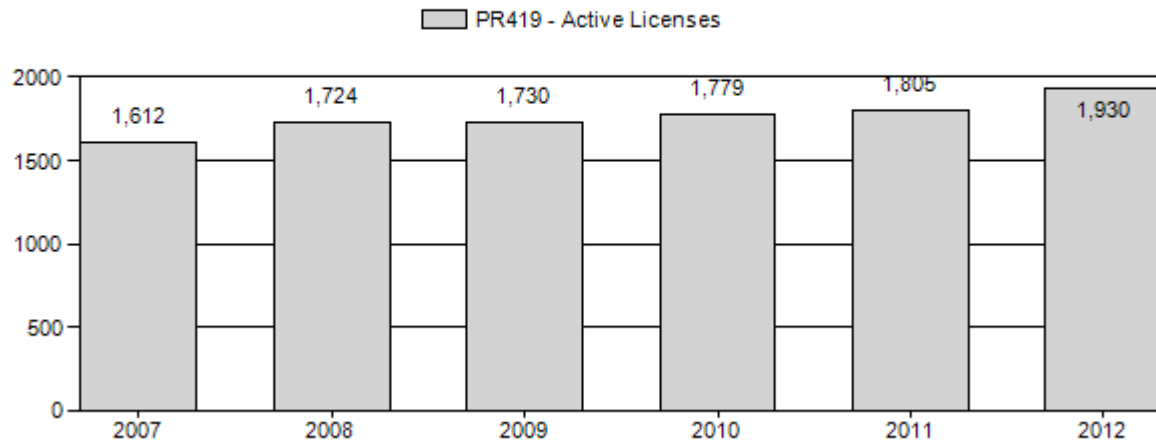
Number of Hunters



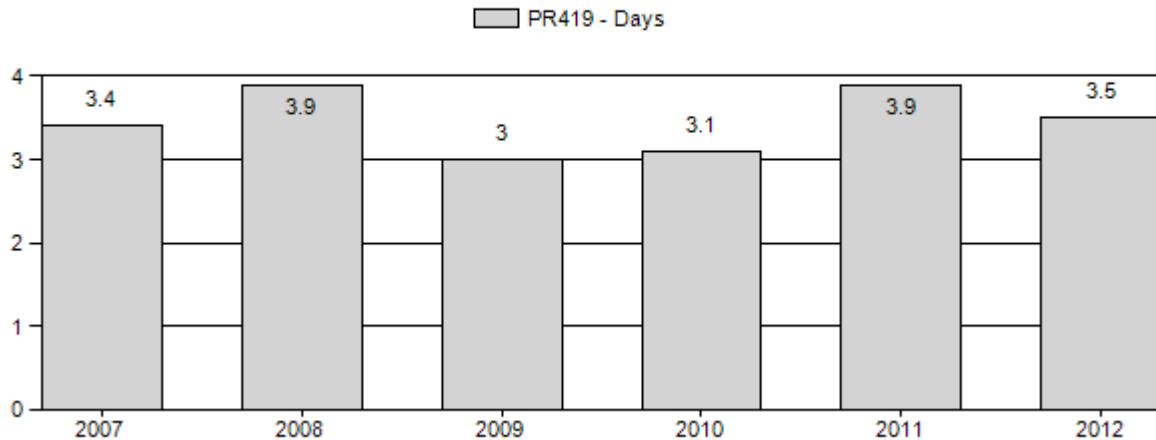
Harvest Success



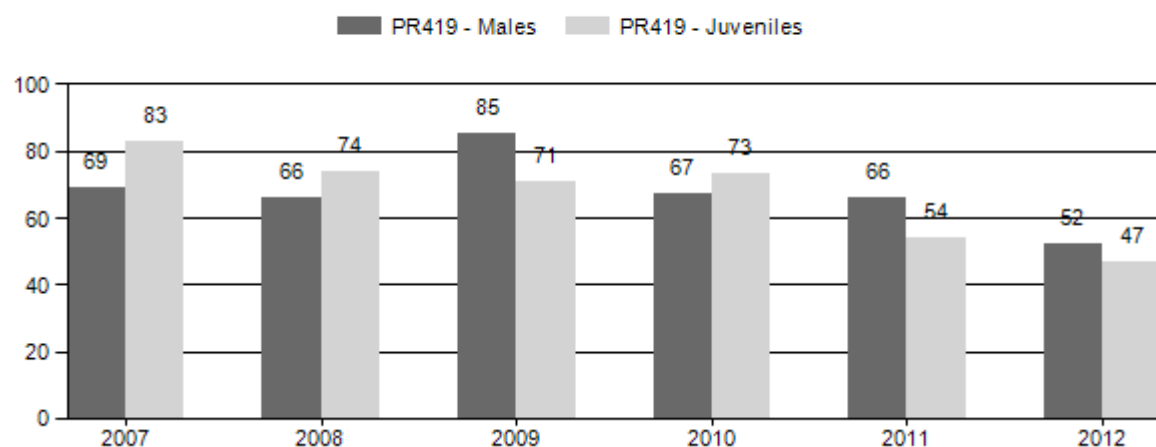
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR419 - CARTER LEASE

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ying	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	10,257	115	182	297	27%	430	40%	356	33%	1,083	0	27	42	69	± 8	83	± 9	49
2008	9,759	203	454	657	27%	1,002	42%	740	31%	2,399	0	20	45	66	± 5	74	± 5	45
2009	9,136	217	453	670	33%	790	39%	564	28%	2,024	0	27	57	85	± 6	71	± 6	39
2010	8,697	237	593	830	28%	1,234	42%	905	30%	2,969	0	19	48	67	± 4	73	± 4	44
2011	7,614	174	537	711	30%	1,071	45%	582	25%	2,364	0	16	50	66	± 4	54	± 4	33
2012	6,060	114	430	544	26%	1,051	50%	498	24%	2,093	0	11	41	52	± 4	47	± 3	31

2013 HUNTING SEASONS

SPECIES: Pronghorn

HERD UNIT: Carter Lease (419)

HUNT AREAS: 94, 98, 100

Hunt Area	Type	Dates of Seasons		Limited Quota	Limitations
		Opens	Closes		
94	1	Sept. 10	Oct. 31	500	Limited quota licenses; any antelope
	6	Sept. 10	Oct. 31	250	Limited quota licenses; doe or fawn
	7	Sept. 10	Oct. 31	200	Limited quota licenses; doe or fawn valid on or within one (1) mile of irrigated lands.
98	1	Sept. 10	Oct. 31	175	Limited quota licenses; any antelope
	6	Sept. 10	Oct. 31	350	Limited quota licenses; doe or fawn
100	1	Sept. 10	Oct. 31	200	Limited quota licenses; any antelope
	6	Sept. 10	Oct. 31	150	Limited quota licenses; doe or fawn
	7	Sept. 10	Oct. 31	100	Limited quota licenses; doe or fawn valid west of the Bear River Divide
94, 98, 100	Archery	Aug. 15	Sept. 9		Refer to Section 3 of this chapter

Hunt Area	License Type	Quota change from 2012
94	6	-200
Herd Unit Total	6	-200

Management Evaluation

Current Postseason Population Management Objective: 6,000

Management Strategy: Recreation

2012 Postseason Population Estimate: ~4,945

2013 Proposed Postseason Population Estimate: ~4,783

Herd Unit Issues

Energy development on crucial habitat is a continuing issue in this herd. Much of the Moxa Arch gas field occurs in the eastern ½ of Area 94. Additionally, a wind development occurs in Area 100 and smaller, scattered areas of oil and gas developments occur in areas 98 and 100.

Two coal mines and a coal fired power plant occur in Area 100. Development is present and has had impacts to habitats in the eastern portion of the herd unit. The hunt areas in this herd are very different in several characteristics. Hunt Area 94 is more xeric and represents “classic” pronghorn habitats dominated by Wyoming big sagebrush. Hunt Areas 98 and 100 have more hilly terrain, are slightly wetter and are very important summer range for Uinta mule deer and winter range for the Wyoming Range mule deer herd. A large number of mule deer migrate into that area to winter on shrub browse. Therefore, we manage for low pronghorn numbers in 98 and 100 to reduce browse competition for mule deer. The herd unit has a split objective of 5,000 antelope in Hunt Area 94 and 1,000 antelope in Hunt Areas 98 and 100 combined.

With high recruitment rates it can be difficult to maintain this population at objective. This is especially true in Hunt Areas 98 and 100 where the desired population is approximately 1,000 antelope, <1 antelope per square mile. In recent years licenses were increased substantially. However, due to low antelope densities hunter success is usually lower than adjacent areas.

Throughout the herd unit there is a low tolerance for the presence of pronghorn on some of the private land holdings. Conflict with agriculture producers can be a primary issue for this herd. Damage complaints primarily occur on irrigated lands during the summer and early fall. However, irrigated lands are uncommon relative to native ranges. Significant efforts have been made by field personnel to target harvest toward those problems. Perceived reduction in livestock forage due to pronghorn foraging is an issue commonly brought up. However dietary overlap and pronghorn use is often negligible in native rangelands. Complaints from domestic sheep producers are common.

Weather

Weather during 2012 and into 2013 was extremely dry and warmer than normal. The winters of 2011-2012 and 2012-2013 were mild with below average snowpack resulting in good over winter survival. However, the dry spring and summer of 2012 negatively impacted summer and winter range forage production. Fawn survival suffered from the extremely dry conditions, especially in the more populous Area 94. Conditions were slightly better at the higher elevations in hunt areas 98 and 100. Pronghorn distribution was affected by the drought, with more concentrations on irrigated habitats, increasing damage concerns.

Habitat

Habitat data collection has been inconsistently collected in this herd unit and has been absent in the recent past. A new effort is underway to resume data collection.

Field Data

Fawn ratios have been very good in the past, averaging over 75:100 from 2007-2010. During that time observed ratios ranged from 73:100 in 2010 to 83:100 in 2007. This population had been suppressed by harvest due to a low overall objective for the herd unit when compared to carrying capacity, which likely contributes to higher fawn production when compared to adjacent herds. However, the 2011 fawn:doe ratio data was significantly lower at 54:100 and even lower in 2012 at 32:100. These are the lowest fawn:doe ratios in over 12 years. The harsh winter conditions in the winter of 2010/11 likely decreased doe condition enough to cause poor fawn production in 2011, and the extremely dry conditions in 2012 caused significant observed pre-season fawn mortality. Desiccated, entire fawn carcasses were commonly encountered during the 2012 summer, especially in Hunt Area 94.

Line transect survey data was most recently conducted in 2011 in Hunt Area 94. Hunt areas 98 and 100 are not conducive to this type of survey due to low antelope densities and broken terrain.

An increased effort was made in 2011 to survey HA 94 with higher intensity in an effort to develop a reasonable estimate for this single hunt area. The Hunt Area 94 population has been declining for several years due to aggressive harvest strategies and we are now below the approved objective. This resulted in reduced doe-fawn (Type 6) licenses for 2013.

Harvest Data

Doe/fawn harvest opportunity was increased every year for several years in area 94 since the objective was being exceeded. The 2009, 2010 and 2011 season structures offered substantially increased doe/fawn harvest opportunity to try to reduce that part of the herd and reduce damage problems on irrigated lands. This management framework along with two years of poor fawn production has brought this population below objective.

In 2010 we altered the area 100 type 7 licenses. They are valid for doe/fawn antelope in the portion of area 100 west of the Bear River Divide in an effort to address concentrations of antelope on private land near Evanston and to focus more harvest on animals in potential competition with mule deer. Since increasing doe/fawn harvest substantially over the years in area 100 the antelope population in area 100 has significantly declined, as was intended. Success rates in HA 100 are lower than adjacent hunt areas including area 98, which is also managed for low antelope densities.

Population

The CJ,CA model was selected due to a low Relative AICc score, its fit with the data and the population estimate appears to be reasonable. A total Herd Unit 419 (Carter Lease) model is very unreliable due to much different population parameters in Hunt Areas 98 and 100 compared to Hunt Area 94. Additionally the line transect survey method is of limited value in hunt areas 98 and 100 due to variation in topography and inability to maintain the proper AGL. Since the model is validated with line transect estimates, the Hunt Area 94 population model is presented. Herd unit population estimates are reported as the Hunt Area 94 model plus 1,000 animals to account for the populations we are unable to model in HA 98 and 100.

Currently the model is estimating we have around 3,965 pronghorn following the 2012 season in Hunt Area 94. This is below the population objective of 5,000 animals for that area. The model estimates a downward trend since 2010. This is due to a severe winter in 2010/11, and very poor fawn production in 2011 and 2012. This is substantiated by reductions in classification sample sizes and field observations. This herd has the potential for rapid growth as consecutive years with high fawns ratios have occurred in the past. Therefore, adequate female harvest has been needed to curtail growth.

Management Summary

For 2013 we will leave the Hunt Area 98 and 100 portion of the herd unit at the same license numbers and season structure as 2012 to maintain pressure in this portion of the herd. With two successive years of low recruitment rates in HA 94 that portion of the population has decreased and fallen below objective. We reduced Type 6 doe-fawn licenses in this area to permit herd growth. However, to address damage concerns, the 2013 season will have the same number of Type 7 doe-fawn licenses, which are restricted to on, or within 1 mile, of irrigated grounds. The objective and management strategy were last revised for this herd in 2000.

Model

INPUT																	
Species:	Pronghorn																
Biologist:	Jeff Short																
Herd Unit & No.:	PR419 (HA94 only)																
Model date:	02/17/13																
														<input type="button" value="Clear form"/>			
MODELS SUMMARY														Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival											98	107	<input checked="" type="checkbox"/> C-J,CA Model			
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival											95	109	<input type="checkbox"/> SC-J,SCA M			
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival											86	197	<input type="checkbox"/> TS-J,CA Model			
Population Estimates from Top Model																	
Year	Predicted Prehunt Population (year			Total	Predicted Posthunt Population (year i)			Total	Predicted adult End-of-bio-year Pop (year			LT Population Estimate		Trend Count	Objective		
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE				
1993	382	2141	3464	5987	370	1379	3198	4946	1309	3060	4369				5000		
1994	1899	1283	2999	6180	1899	1173	2997	6068	1483	3207	4690				5000		
1995	2651	1453	3143	7248	2651	1341	3132	7124	1794	3488	5282				5000		
1996	2531	1758	3418	7707	2531	1632	3413	7575	2042	3728	5770				5000		
1997	3015	2001	3653	8669	3003	1860	3610	8474	2349	4003	6352				5000		
1998	3207	2302	3923	9432	3189	2096	3850	9135	2602	4263	6864				5000		
1999	3236	2550	4177	9963	3220	2284	3994	9497	2780	4396	7176				5000		
2000	1865	2724	4308	8898	1827	2328	3886	8041	2521	3984	6505				5000		
2001	2805	2470	3905	9180	2788	2233	3760	8782	2647	4092	6738				5000		
2002	1660	2594	4010	8263	1632	2277	3783	7692	2442	3867	6309				5000		
2003	2613	2393	3790	8796	2583	2072	3683	8338	2443	3976	6419				5000		
2004	3359	2394	3896	9649	3333	2067	3749	9149	2592	4188	6780				5000		
2005	3458	2540	4105	10102	3412	2156	3824	9393	2681	4259	6940				5000		
2006	2091	2628	4174	8892	2045	2183	3693	7921	2422	3841	6263				5000		
2007	3119	2374	3764	9257	3075	1924	3404	8403	2389	3789	6179				5000		
2008	2704	2341	3714	8759	2637	1866	3379	7882	2236	3671	5907	7400	1837		5000		
2009	2347	2191	3598	8136	2292	1714	3210	7215	2026	3441	5467				5000		
2010	2340	1986	3372	7697	2308	1549	2978	6635	1884	3233	5117	5789	627		5000		
2011	1599	1847	3168	6614	1529	1433	2732	5694	1540	2752	4292				5000		
2012	854	1509	2697	5060	796	995	2153	3945	1056	2320	3375				5000		
2013	1421	1035	2223	4729	1388	507	1888	3783							5000		

Survival and Initial Population Estimates									
Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates					
	Model Est	Field Est	SE	Model Est	Field Est	SE			
1993	0.40			0.92					
1994	0.40			0.92					
1995	0.40			0.92					
1996	0.40			0.92					
1997	0.40			0.92					
1998	0.40			0.92					
1999	0.40			0.92					
2000	0.40			0.92					
2001	0.40			0.92					
2002	0.40			0.92					
2003	0.40			0.92					
2004	0.40			0.92					
2005	0.40			0.92					
2006	0.40			0.92					
2007	0.40			0.92					
2008	0.40			0.92					
2009	0.40			0.92					
2010	0.40			0.92					
2011	0.40			0.92					
2012	0.40			0.92					
2013	0.40			0.92					

Parameters:

Juvenile Survival = 0.400

Adult Survival = 0.922

Initial Total Male Pop/10,000 = 0.214

Initial Female Pop/10,000 = 0.346

MODEL ASSUMPTIONS

Sex Ratio (% Males) = 50%

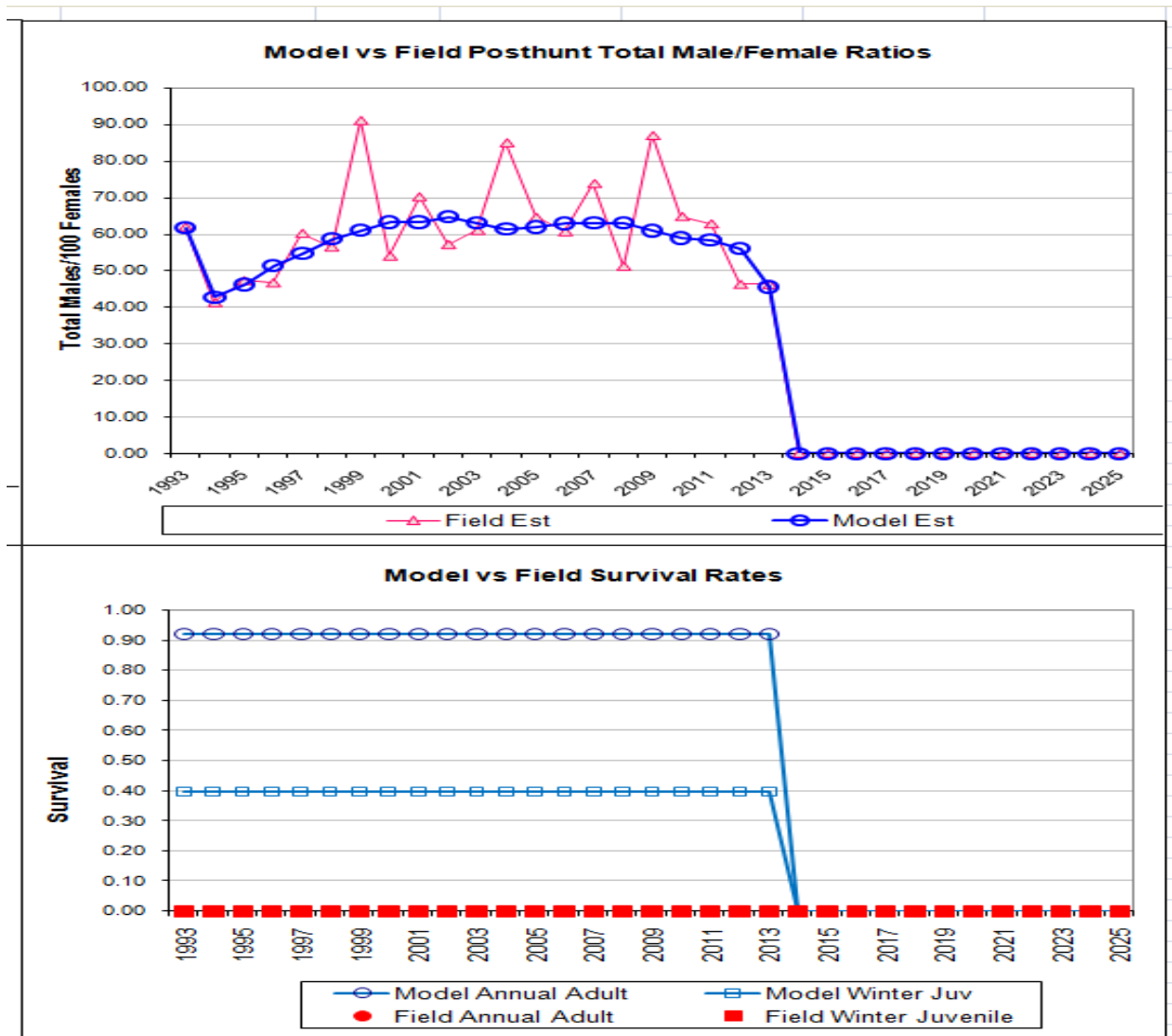
Wounding Loss (total males) = 10%

Wounding Loss (females) = 10%

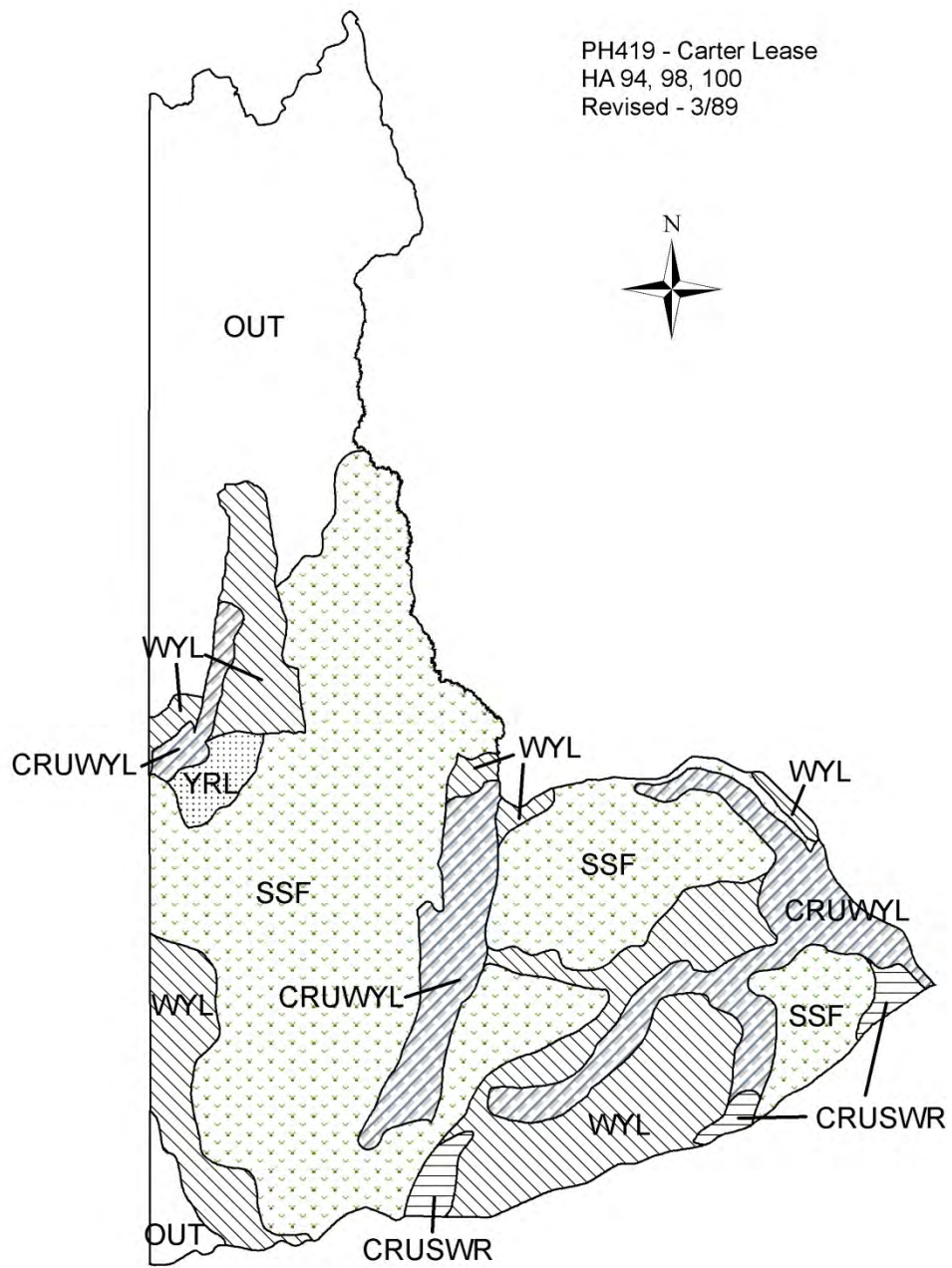
Wounding Loss (juveniles) = 10%

Over-summer adult survival = 98%

Classification Counts											Harvest	
Year	Juvenile/Female Ratio			Total Male/Female Ratio							Segment Harvest Rate (%)	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females
1993		11.03	1.49	61.82	62.03	4.26	693	242	11	946	35.6	7.7
1994		63.32	6.32	42.78	41.31	4.75	100	2	0	102	8.6	0.1
1995		84.35	7.27	46.22	47.28	4.87	102	10	0	112	7.7	0.3
1996		74.04	5.93	51.43	46.72	4.33	115	5	0	120	7.2	0.2
1997		82.53	6.18	54.78	60.25	4.94	128	39	11	178	7.0	1.2
1998		81.74	6.56	58.67	56.52	5.06	187	67	16	270	8.9	1.9
1999		77.47	5.90	61.04	61.14	6.64	242	167	15	424	10.4	4.4
2000		43.30	3.72	63.24	54.02	4.31	360	384	35	779	14.5	9.8
2001		71.84	6.25	63.27	70.25	6.15	216	131	15	362	9.6	3.7
2002		41.40	3.69	64.68	57.21	4.57	288	206	25	519	12.2	5.7
2003		68.95	5.54	63.16	61.05	5.09	292	97	27	416	13.4	2.8
2004		86.22	7.95	61.44	85.04	7.87	297	134	24	455	13.6	3.8
2005		84.23	5.91	61.88	64.64	4.90	349	255	41	645	15.1	6.8
2006		50.09	3.84	62.95	60.67	4.15	404	437	42	883	16.9	11.5
2007		82.87	6.52	63.07	73.88	6.01	409	327	40	776	19.0	9.6
2008		72.81	4.06	63.05	51.24	3.18	432	304	61	797	20.3	9.0
2009		65.23	4.50	60.91	87.03	5.53	434	353	50	837	21.8	10.8
2010		69.40	3.61	58.89	64.86	3.44	397	358	29	784	22.0	11.7
2011		50.48	3.02	58.29	62.86	3.51	376	396	64	836	22.4	13.8
2012		31.65	2.29	55.96	46.28	2.92	467	495	495	1014	34.0	20.2
2013		62.50	3.56	45.51	46.25	2.91	480	350	350	860	51.0	16.9



PH419 - Carter Lease
HA 94, 98, 100
Revised - 3/89



2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR438 - BAGGS

HUNT AREAS: 53, 55

PREPARED BY: TONY MONG

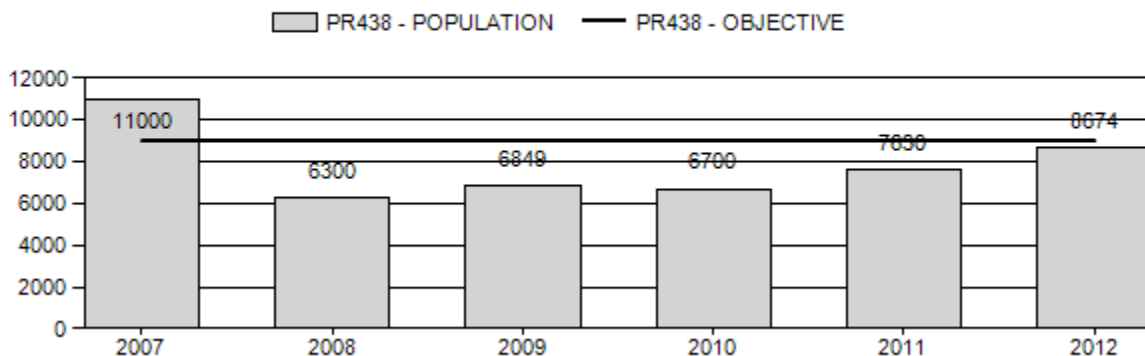
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	7,696	8,674	8,847
Harvest:	386	138	175
Hunters:	417	160	200
Hunter Success:	93%	86%	88%
Active Licenses:	457	160	210
Active License Percent:	84%	86%	83%
Recreation Days:	1,306	489	550
Days Per Animal:	3.4	3.5	3.1
Males per 100 Females	48	64	
Juveniles per 100 Females	57	58	

Population Objective: 9,000
 Management Strategy: Recreational
 Percent population is above (+) or below (-) objective: -3.6%
 Number of years population has been + or - objective in recent trend: 5
 Model Date: 05/28/2013

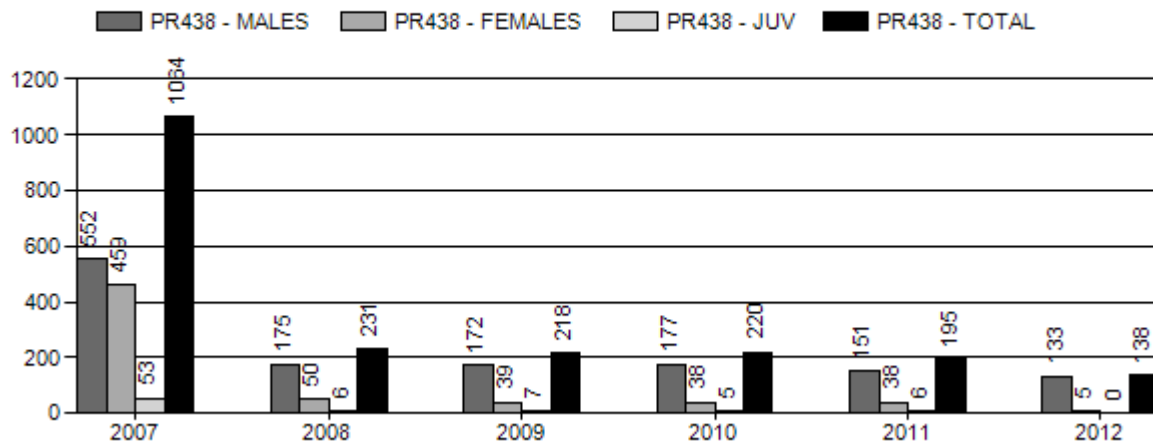
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	1.2%	0.9%
Males ≥ 1 year old:	7.5%	7.5%
Juveniles (< 1 year old):	0%	0%
Total:	2.18%	2.15%
Proposed change in post-season population:	15.7%	2.8%

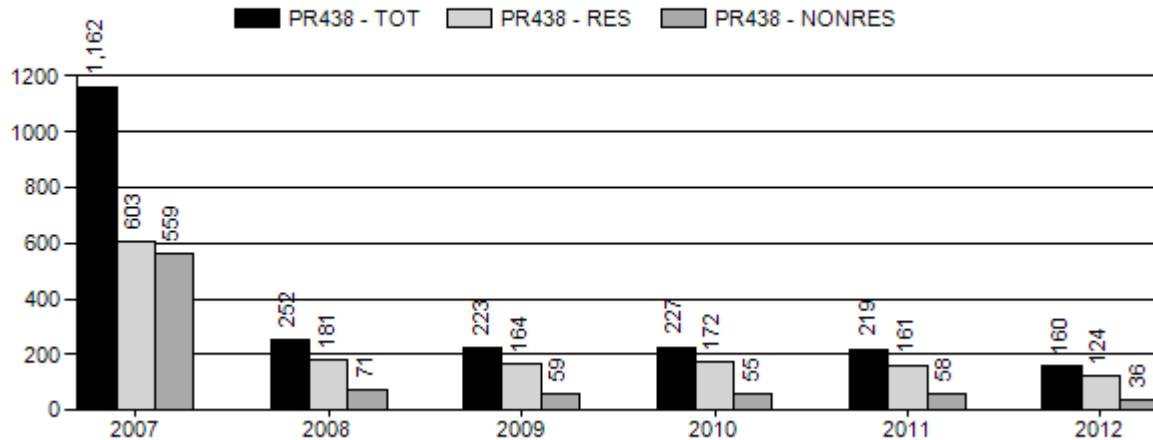
Population Size - Postseason



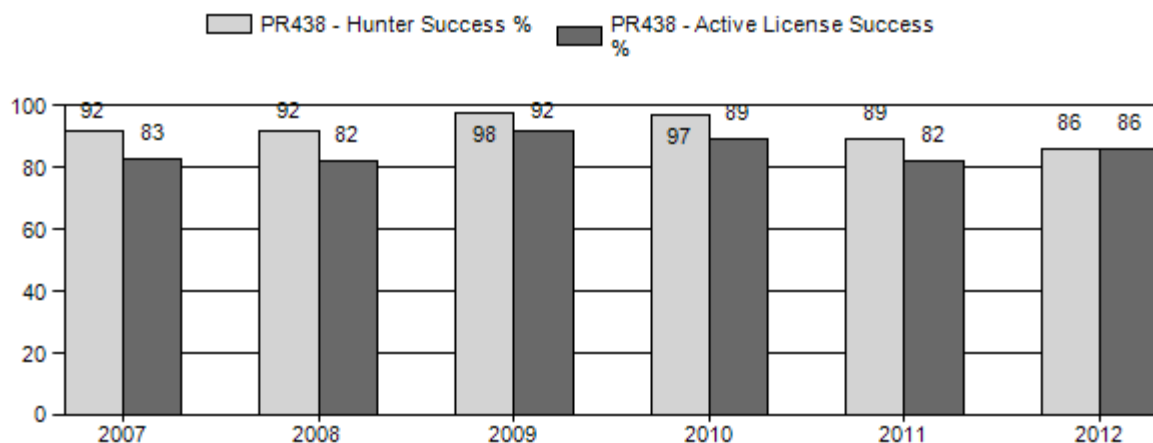
Harvest



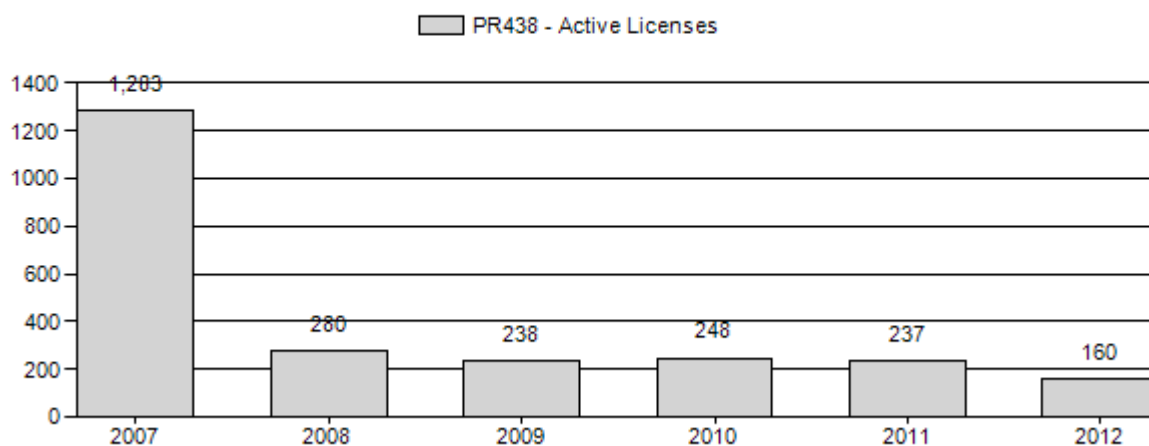
Number of Hunters



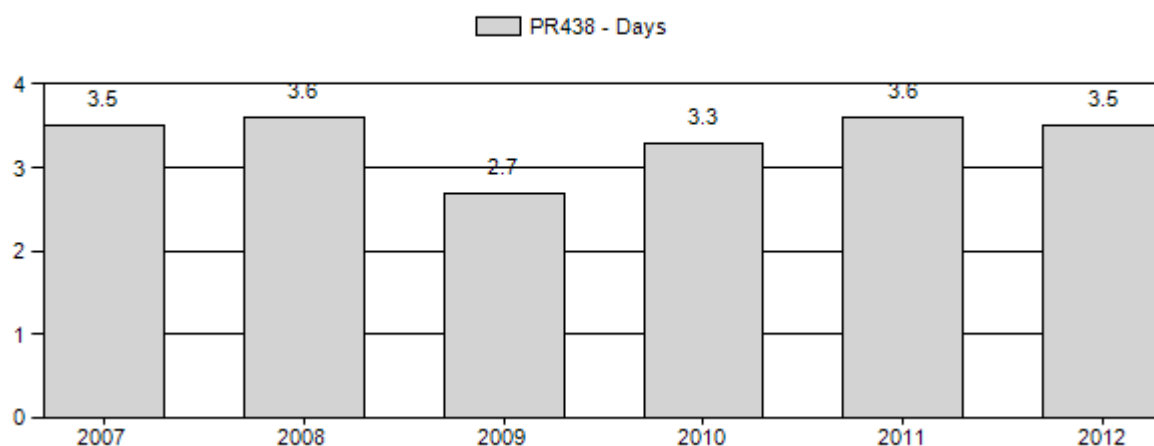
Harvest Success



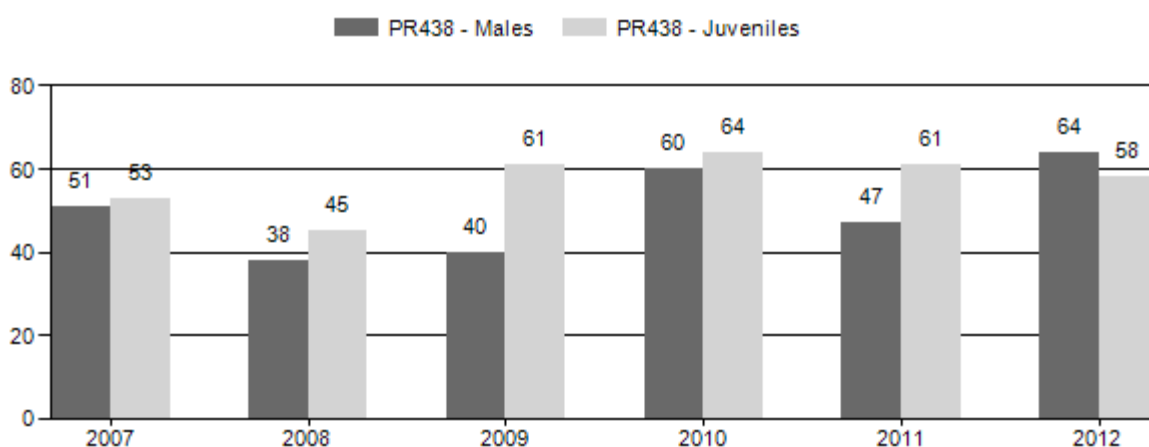
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2013 HUNTING SEASON

SPECIES : **Pronghorn**

HERD UNIT : **Baggs (438)**

HUNT AREAS: **53, 55**

Hunt Area	Type	Open	Close	Quota	Limitations
53	1	Sept. 20	Oct. 31	100	Limited quota; any antelope
	7	Sept. 1	Oct. 31	25	Limited quota; doe or fawn valid on or within one (1) mile of irrigated land
55	1	Sept. 20	Oct. 31	100	Limited quota; 100 licenses any antelope
53, 55	Archery	Sept. 15	Oct. 19		Refer to Section 3

<i>Hunt Area</i>	<i>Type</i>	<i>Quota change from 2012</i>
53	1	0
	7	+25
55	1	+25
Total	1	+25
	7	+25

Management Evaluation

Current Management Objective: 9,000

2012 Postseason Population Estimate: ~8,600

2013 Proposed Postseason Population Estimate: ~8,800

Herd Unit Issues

The Baggs Pronghorn Herd is slightly below the objective of 9,000 (set in 1993) and our continued management strategy is to increase herd size. With the exception of adding a few doe-fawn licenses in Area 53 to address private land damage, and a minor increase in Type 1 license in Area 55, seasons will remain relatively conservative until population allows for more liberal seasons.

Throughout the Baggs herd unit, energy development is increasing, in both traditional oil and gas developments, and in wind energy. The Sierra Madre-Chokecherry wind energy development will impact a portion of this herd, on summer ranges, and will be the largest wind energy facility in North America. Landownership is varied throughout the herd unit. Hunt Area 53 remains relatively open to public hunting with a majority of the land under public ownership, but energy development has appeared to displace some animals. However, Hunt Area 55, which has less energy development, is under checkerboard ownership and has public access concerns with much of the private land leased by outfitters.

The variable weather conditions and severe winters we experienced in recent years seem have slowed the recovery of the Baggs herd from declines experienced during the 2007-08 winter.

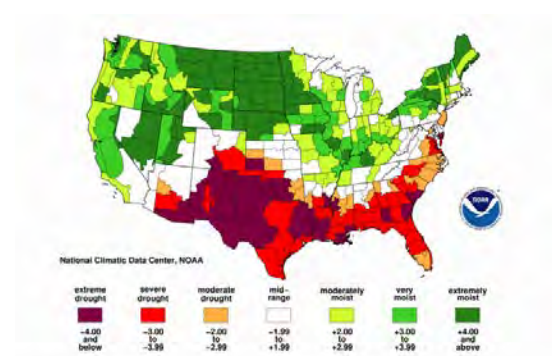
Emigration during the 2007-08 winter (to the Bitter Creek herd), winter losses, and likely reduced habitat suitability have all reduced the ability of this herd to recover quickly, as experienced in the past.

Weather

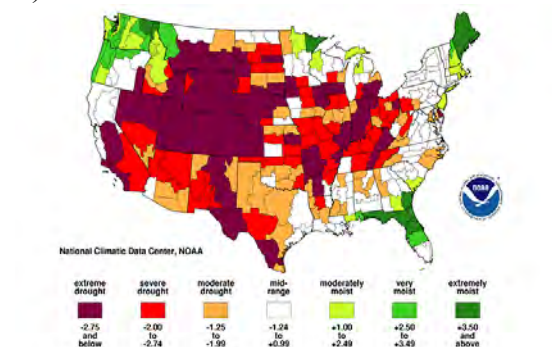
Within the last several years this herd has experienced extreme weather conditions which has lead to variations in fawn and adult survival, fawn production, pronghorn distribution, and hunting conditions. In 2010-11 moisture levels were at record highs with high snow levels, followed in 2011-12 with record drought conditions and low snow levels (Figure 1).

Figure 1. A) Palmer short-term drought index from June 2011. B) Palmer short-term drought index from June 2012

A)



B)



Field Data

Periodic line transect surveys, annual pre-season classification data and harvest field checks represent the bulk of field data collected in this herd unit in a formal manner. Fawn production over the last 4 years (61 fawns:100 does) has been high when compared to the previous 10 year average (52 fawns:100 does), but tends to vary between the two hunt areas. In 2012, fawn ratios in Hunt Area 53 were higher than normal, nearly double that observed in Area 55. This is likely influenced by the higher elevations and precipitation that Area 53 experiences compared to Area 55, allowing for better fawn production and survival, even during the extreme drought of 2012. Increased fawn production may have led to lower winter fawn survival following this extreme drought, but this is somewhat speculative given we have limited field data to support this at this time. Increased fawn production is contributing to herd growth, allowing the herd to move to near the approved objective. Fawn recruitment appears to be near normal in this population

over recent years, despite increased fawn ratios. Yearling ratios are comparable to average numbers prior to the 2007-08 winter, suggesting increased fawn production did not necessarily result in increased recruitment to the yearling age class. Adult buck numbers have reached a high not seen since the early 2000's, suggesting more opportunity likely exists. License numbers, Type 1s and Type 6s, will need to be increased in recent years to maintain numbers at objective.

Harvest Data

Hunter success across the herd unit has been below average, and the 2012 season showed one of the lowest harvest success rates recorded in the herd unit (86%). Hunt area 53 showed average to above average success in 2011 (96%) and dropped off significantly in 2012 (84%). Hunt area 55 showed the opposite trend with a much lower success year in 2011 (79%) compared to 2012 (89%). These shifting hunter success rates are likely the result of inter-annual variations in pronghorn distribution.

Population

The current population model estimates the 2013 end-of-bio-year population to be 8,600 pronghorn, slightly below the current objective. Despite the CJ, CA model having the lowest relative AICc value, we chose the SCJ, SCA model based on what we believe to be a better representation of population trend and size, and because it more closely aligns with line transect estimates obtained in 2008 and 2012. Although we choose the SCJ, SCA model as the "best" model both models estimate the current population near 8,600 animals for 2013. However, neither model fits within the line transect population estimate confidence interval for 2012 (see 2011 JCR for line transect details). We will continue to explore variables within the model to see if it is possible to force the model through the estimate derived from the EOY 2011 line transect survey, which produced a reasonable estimate with a relatively tight confidence interval. Both the spreadsheet and line transect estimates remain below the current objective, and the management decision to increase herd size is not in question.

Within the SCJ, SCA model we added survival constraint parameters to the model for juveniles and adults in 2007, and for juveniles only in 2008, 2009 and 2011. In 2007, we constrained survival estimates in the model for juveniles to align between 0.10 and 0.70 and for adults 0.70 and 0.85. In 2008, 2009 and 2011, we constrained juvenile survival within a range of 0.60 and 0.90.

Management Summary

The variable harvest success, extreme weather conditions, spreadsheet model estimates and line transect estimates all indicate that the population is slightly below the current population objective, but may be farther below hunter expectations. In the past, it was not uncommon for this population to greatly exceed the established objective, and sportsmen tend to favor this condition. The fact numbers are not meeting demand is consistent with personnel, sportsmen, and landowner observations. The winter of 2007-08 was devastating to this herd, but numbers are now increasing, albeit slower than previous periods of winter loss. This suggest habitat issues may be slowing recovery through lower potential carrying capacity and increased mortality due to winter events and drought.

The 2013 hunting seasons for this herd unit will allow the population to continue to increase. The addition of 25 doe-fawn licenses in Hunt Area 53 will direct some doe harvest to areas with damage concerns on irrigated hay meadows, specifically along the Little Snake River and Savery

Creek. The increase in Hunt Area 55 Type 1 licenses will provide more hunter opportunity in light of increased buck ratios in this area. If we maintain the current level of harvest and the winter is mild, licenses will need to be increased in this herd unit next year.

INPUT	
Species:	Pronghorn
Biologist:	Tony Mong
Herd Unit & No.:	Baggs, 438
Model date:	02/25/13

MODELS SUMMARY			Notes
	Fit	Relative AICc	Check best model to create report
CJ,CA	Constant Juvenile & Adult Survival	109	<input type="checkbox"/> CJ,CA Model
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	100	<input type="checkbox"/> SCJ,SCA Mo
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	67	<input type="checkbox"/> TSJ,CA Model

Population Estimates from Top Model													
Year	Predicted Prehunt Population (year <i>t</i>)			Total	Predicted Posthunt Population (year <i>i</i>)			Total	Predicted adult End-of-bio-year Pop (year <i>i</i>)		LT Population Estimate		Trend Count
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Field Est	Field SE	
1993	2857	3603	7785	14245	2727	2596	6352	11675	2843	6302	9146		
1994	2830	2787	6176	11793	2804	2455	6017	11276	2821	6152	8972		
1995	1649	2764	6029	10441	1649	2406	6029	10083	2544	5949	8493		
1996	2248	2493	5830	10571	2248	2306	5810	10364	2589	5866	8455		
1997	2189	2537	5749	10475	2181	2396	5705	10283	2661	5750	8412		
1998	3050	2608	5635	11294	3048	2463	5590	11101	2901	5822	8723		
1999	3138	2843	5705	11687	3136	2611	5685	11432	3050	5930	8979		
2000	2978	2989	5811	11778	2978	2688	5729	11395	3084	5934	9018		
2001	2776	3022	5815	11614	2772	2803	5771	11347	3155	5934	9088		
2002	3268	3092	5815	12174	3266	2746	5745	11756	3192	6008	9199		
2003	2525	3128	5888	11540	2517	2703	5836	11056	2990	5940	8930		
2004	3122	2930	5821	11873	3111	2441	5720	11272	2860	5948	8808		
2005	3909	2803	5829	12541	3888	2251	5482	11621	2833	5860	8693		
2006	2872	2777	5743	11391	2824	2154	5064	10042	2512	5216	7728		
2007	2705	2461	5112	10279	2637	1856	4603	9096	1244	3235	4479	4681	676
2008	1437	1219	3170	5826	1430	1027	3115	5572	1375	3332	4707		
2009	1980	1347	3265	6593	1973	1158	3222	6353	1770	3705	5475		
2010	2317	1735	3631	7683	2311	1540	3589	7441	1887	3808	5694	7791	1155
2011	2264	1849	3732	7844	2257	1683	3690	7630	2323	4219	6542		
2012	2414	2276	4135	8825	2414	2130	4130	8674	2430	4304	6734		
2013	2469	2382	4218	9069	2463	2203	4181	8847	2539	4393	6932		
2014	2520	2488	4305	9313	2514	2310	4268	9092	2649	4484	7133		
2015	2572	2596	4394	9563	2567	2418	4357	9342					

Survival and Initial Population Estimates

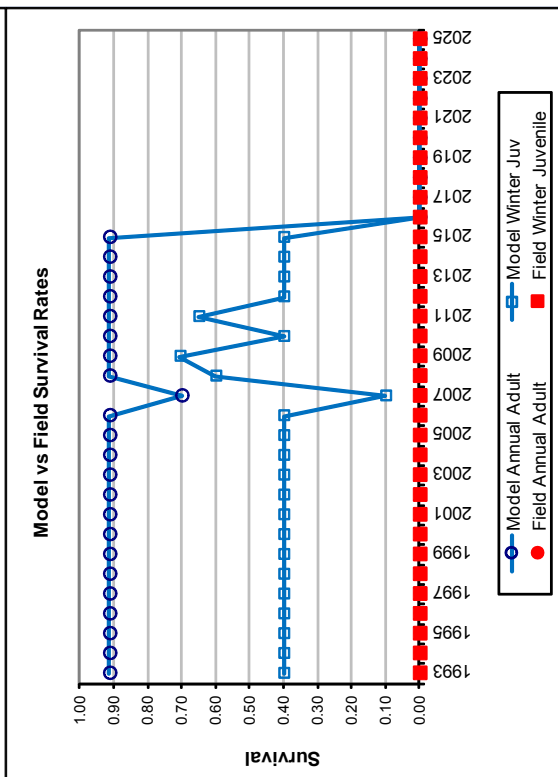
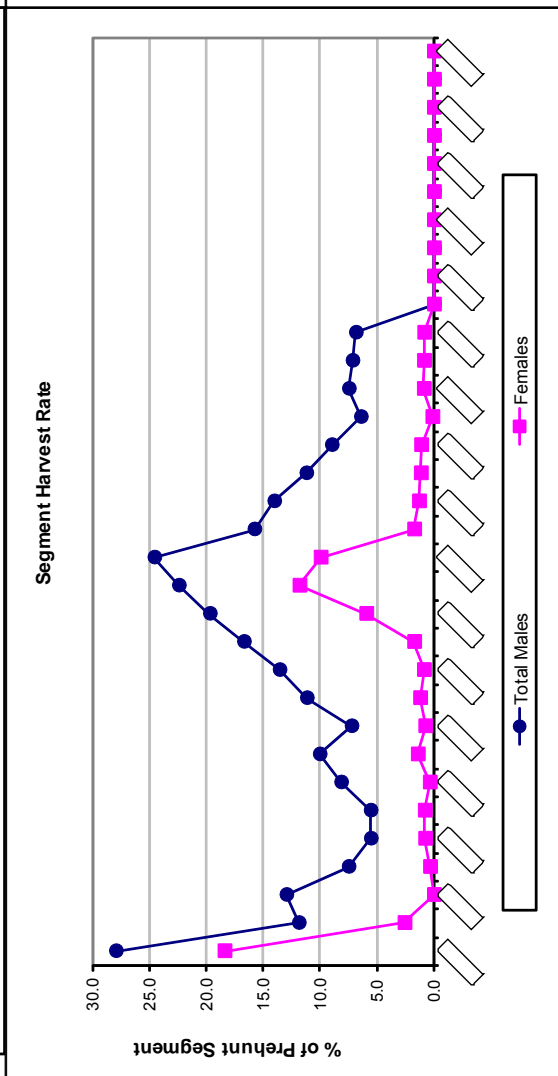
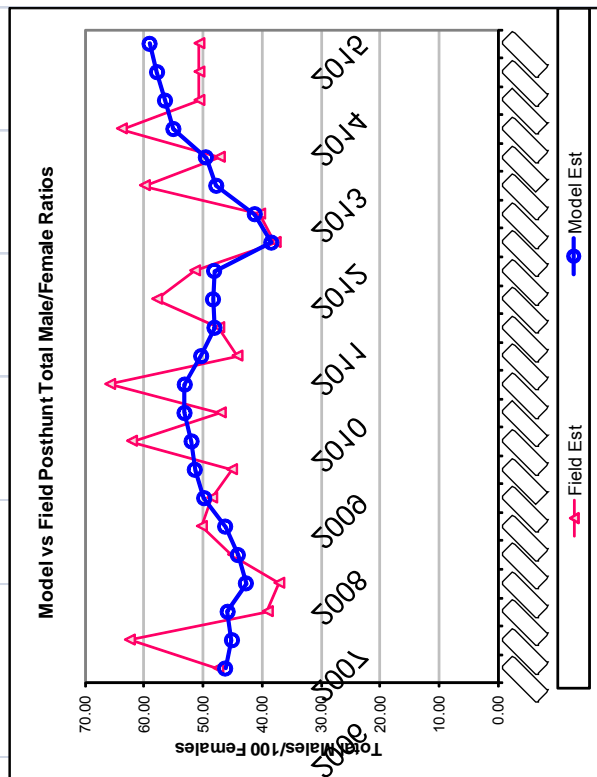
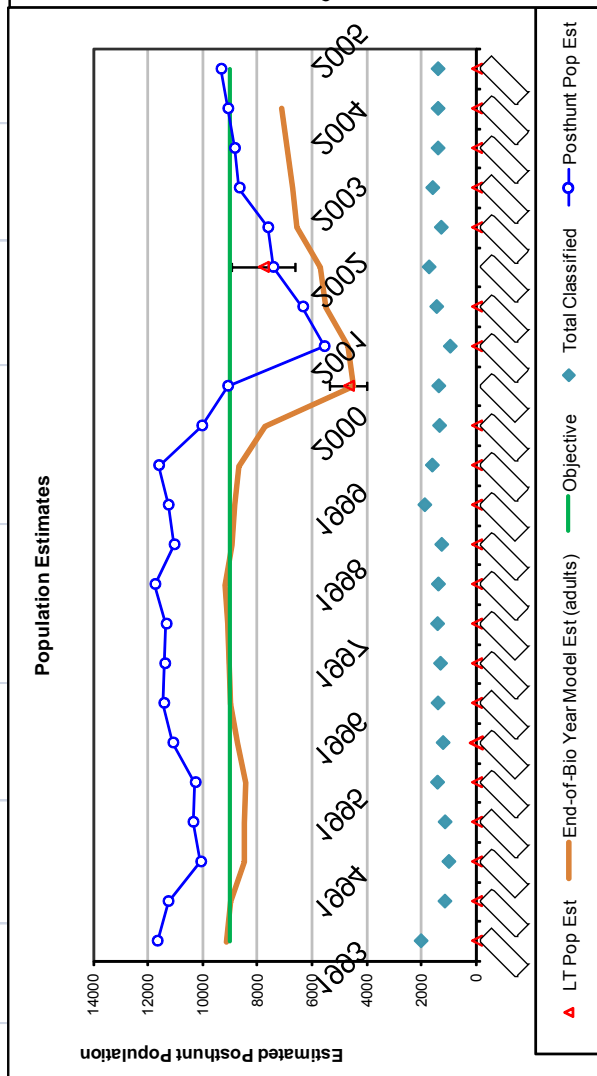
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1993	0.40		0.91	
1994	0.40		0.91	
1995	0.40		0.91	
1996	0.40		0.91	
1997	0.40		0.91	
1998	0.40		0.91	
1999	0.40		0.91	
2000	0.40		0.91	
2001	0.40		0.91	
2002	0.40		0.91	
2003	0.40		0.91	
2004	0.40		0.91	
2005	0.40		0.91	
2006	0.40		0.91	
2007	0.10		0.70	
2008	0.60		0.91	
2009	0.71		0.91	
2010	0.40		0.91	
2011	0.65		0.91	
2012	0.40		0.91	
2013	0.40		0.91	
2014	0.40		0.91	
2015	0.40		0.91	

Parameters:	
Juvenile Survival =	0.400
Adult Survival =	0.912
Initial Total Male Pop/10,000 =	0.360
Initial Female Pop/10,000 =	0.779

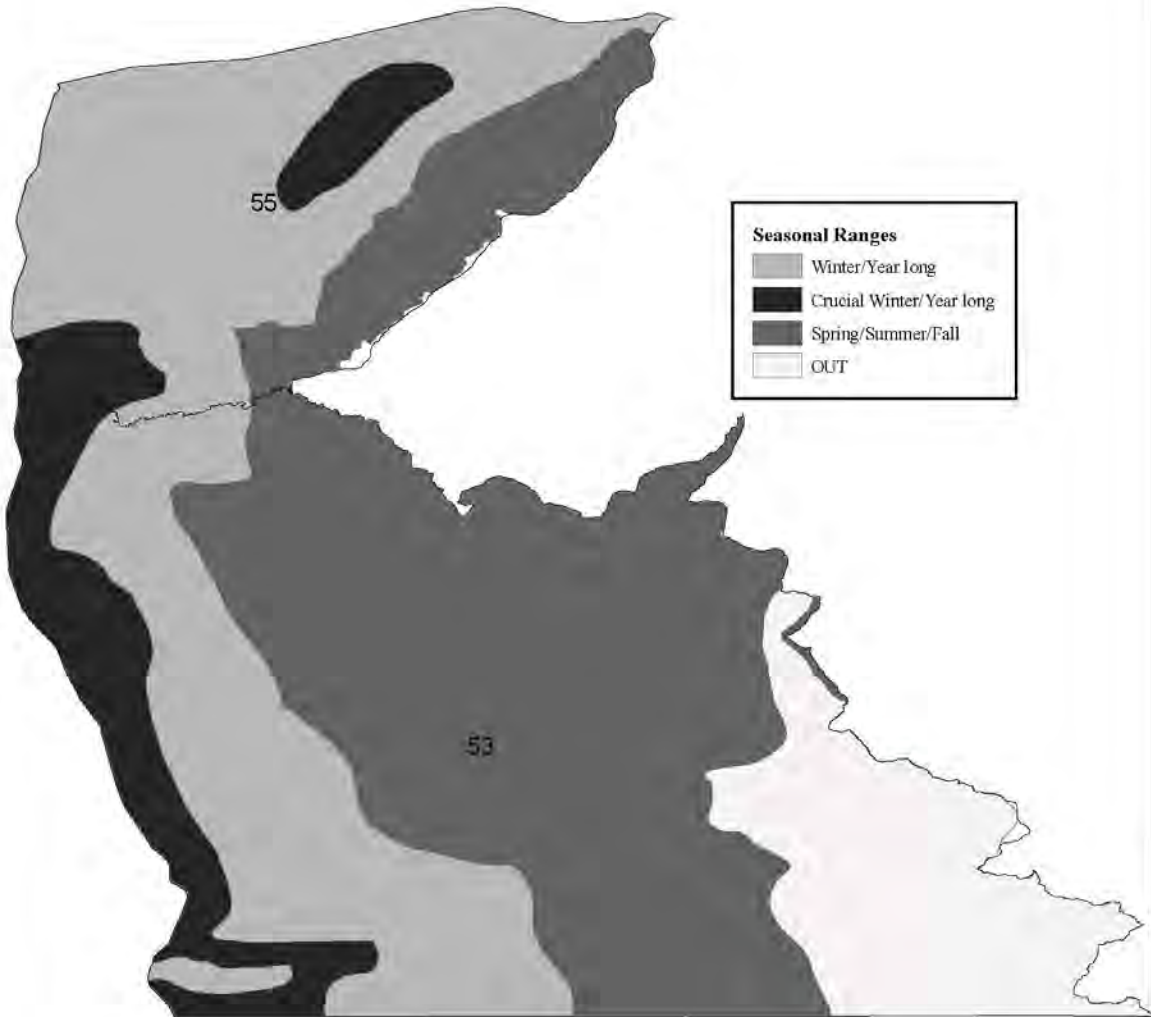
MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

Classification Counts										Harvest			
Year	Juvenile/Female Ratio			Total Male/Female Ratio			Segment Harvest Rate (%)			Total Harvest			
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females		Total Males	Females	
1993		36.70	2.13		46.28	47.52	2.51	916	1303	118	2337	28.0	18.4
1994		45.83	3.45		45.12	62.52	4.25	301	145	24	470	11.9	2.6
1995		27.35	2.37		45.85	39.16	2.97	326	0	0	326	13.0	0.0
1996		38.55	2.84		42.76	37.20	2.77	170	18	0	188	7.5	0.3
1997		38.07	2.58		44.13	45.05	2.88	128	40	7	175	5.5	0.8
1998		54.13	3.71		46.28	50.33	3.53	132	41	2	175	5.6	0.8
1999		55.00	3.49		49.83	48.57	3.21	211	19	2	232	8.2	0.4
2000		51.25	3.38		51.43	45.21	3.11	273	75	0	348	10.0	1.4
2001		47.74	3.20		51.97	62.15	3.83	199	40	4	243	7.2	0.8
2002		56.20	3.56		53.17	47.12	3.16	314	64	2	380	11.2	1.2
2003		42.88	3.15		53.13	65.86	4.20	386	47	7	440	13.6	0.9
2004		53.63	2.92		50.34	44.29	2.57	445	92	10	547	16.7	1.7
2005		67.06	3.83		48.09	47.38	3.03	502	315	19	836	19.7	5.9
2006		50.00	3.38		48.35	57.90	3.73	566	617	43	1226	22.4	11.8
2007		52.92	3.44		48.15	51.46	3.38	550	463	62	1075	24.6	10.0
2008		45.32	3.51		38.46	37.83	3.12	175	50	6	231	15.8	1.7
2009		60.66	3.65		41.27	40.44	2.79	172	39	7	218	14.0	1.3
2010		63.81	3.66		47.78	59.97	3.50	177	38	5	220	11.2	1.2
2011		60.67	3.94		49.55	47.29	3.33	151	38	6	195	9.0	1.1
2012		58.38	3.56		55.05	63.87	3.79	133	5	5	138	6.4	0.1
2013		58.53	3.69		56.46	50.74	3.35	162	34	34	201	7.5	0.9
2014		58.53	3.69		57.81	50.74	3.35	162	34	34	201	7.2	0.9
2015		58.53	3.69		59.08	50.74	3.35	162	34	34	201	6.9	0.9

FIGURES



Baggs PR438 Herd Seasonal Ranges



0 5 10 20 Miles